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A RESOLUTION OF THE COUNCIL

Reports of official recommendations to separate the U. S. Public Health Service from the U. S. Treasury Department and make it a subdivision of a proposed U. S. Department of Social Welfare, or of an administrative equivalent, actuate the Council of the Medical Society of Virginia to register objections to such action in the follcwing resolutions:

Whereas, As a Bureau of the U. S. Treasury Department, the U. S. Public Health Service for all practical, professional, and official purposes, has been a separate administrative entity, being supervised in detail by the Treasury Department only in budgetary and other financial matters; and

Whereas, The U. S. Public Health Service, thus functioning as a separate administrative and policy-developing unit under the Treasury Department since its organization, has rendered, and continues to render, notably efficient service in the fields of preventive medicine, research, and public health; and

Whereas, The prestige and influence of the U. S. Public Health Service is now recognized by the people as well as by the medical profession, and such influence and prestige is essential for the protection of the public health; and

Whereas, The technical and scientific problems involved in the effective functioning of this type of service require that the administrative direction be centered in a physician who has had administrative training and experience and whose supervision in no manner will be directed or curtailed by an unqualified superior; and

Whereas, Assuming that the direction of the proposed Federal Department of Social Welfare, or of its administrative equivalent, would be given to a qualified physician, the present problems of Social Welfare are so great in themselves as to tax to the utmost the work of such appointee; and

Whereas, The Public Health Service, as now administered by the Federal Government, is a major activity; now, therefore, be it

Resolved, That the Medical Society of Virginia, through its Council, in regular session assembled, definitely opposes any proposal to make the U. S. Public Health Service a bureau or other governmental subdivision of a Federal Department other than of the Treasury Department; and be it further

Resolved, That the Medical Society of Virginia strongly urges, in the event of any reorganization affecting the U. S. Public Health Service, that a Federal Department of Public Health be created to include all Federal health activities except those concerned with the military establishments; and be it further

Resolved, That copies of this preamble and of these resolutions be transmitted to the President of the United States, to each Senator and Representative in Congress from Virginia, and to the Surgeon General of the U. S. Public Health Service.

XUM

SYMPOSIUM ON THE ENDOCRINE DISEASES

THE ENDOCRINES IN MEDICINE.*

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In the brief time allotted to this discussion it is possible only to touch upon the more important phases of endocrinology. Some of my remarks will seem rather academic and I trust others will not seem to appear too far afield from a theoretical standpoint.

Within the past decade and even as recent as the last five years of this decade much knowledge has accumulated concerning the physiological activities of the endocrines. Many hours of tedious work have been done by numerous investigators to accumulate knowledge concerning these structures and when all of the conclusions of these investigators are summarized it apears that their efforts have been by no means in vain. The fruits of these investigations shall not be concerned necessarily with the light that has been thrown upon the physiology of these structures but will be far-reaching in comprehension of other body structures and their physiology.

At the outset there are two major issues at hand for our consideration:

First—Those conditions that have arisen in the body by perversion of the physiology incident to imbalance of the endocrines by reason of over-activity.

Second—Those conditions that have arisen by reason of under-activity of the endocrines. It is with these major thoughts in mind that we wish to consider the subject very briefly.

It is my purpose to offer briefly some discussion concerning

1. Etiological background.
2. Symptomatology.
3. Certain diagnostic criteria.
4. More recent therapeutic concepts.

Etiological background.

A. Heredity: "Protoplasmic patterns are projected upon offspring." I mention first of all certain accumulative data that would seem to indicate the hereditary influences that are projected upon offspring by the pituitary gland. "It is not improbable that any and all forms of dwarfism are directly caused by inadequate pituitary function regardless of the ultimate cause." P. E. Smith has shown that some strains of mice are found in which the acidophilic cells of the anterior lobe are congenitally absent.[1] Such animals are dwarfed but otherwise normal and able to transmit their peculiarities to their descendants as a recessive trait. A possible parallel is seen in the human midget able to procreate.

Dr. Max Deutch reports that he has had the opportunity of observing some of the members of a family in which somatic hypoplasia seems to be transmitted through normal as well as dwarf members of the family. None of these dwarfs, however, showed any evidence of glandular disease; it would be, however, very interesting to learn some day whether or not these dwarfs had any changes in the pituary gland especially with reference to the acidophilic cells.

Concerning another very important endocrine disorder, namely, diabetes, it is said by Joslin, "Diabetes is an out and out hereditary disease. An individual who is to have it is born with it."[2] Presuming that diabetes is an endocrine disorder and presuming that it represents a hypo-functioning of the pancreas, the out and out heriditary aspects of endocrine imbalance are very plausible.

"Family predisposition" in thyroid disease is well recognized. Viewing the problem from another angle, it is Dr. Crile's belief that certain animals by reason of certain needs have through the ages developed special glandular relationships to fit these needs for survival and progress of the species.[3] To illustrate: the deer that depends upon swift flight has large adrenal glands and a small thyroid, whereas in man this need does not exist. It is found that his thyroid is much larger proportionately than his adrenals. The demands of his species have not been for flight but have been concerned with mental activity. It seems logical that those structures which

*Read as part of the Symposium on The Endocrine Diseases at the sixty-seventh annual meeting of the Medical Society of Virginia in Staunton, October 13-15, 1936.

stimulate activity tend to hypertrophy, and hence hyperplasia of the thyroid gland comes by reason of this need. We recognize that to some degree at least human mental achievement is dependent upon an active thyroid gland. It is probable that intellectuality depends upon a hyperactive endocrine system. The possessors of these systems undoubtedly accomplish more in a shorter life span but succumb more quickly to "the diseases peculiar to civilized man."

B. Congenital influences: Everyone is familiar with iodine deficiency in endemic goitre region giving rise at times to congenital goitre and cretinism. It has been shown not infrequently that babies born of diabetic mothers die of hyperinsulinism, apparently because of the compensatory increased production of islet tissues *in utero*. After birth there is no longer need for this extra tissue, hence too much insulin is secreted for the needs of the body. It is conceivable therefore that certain deficiencies of the mother, when the child is *in utero,* give rise to compensatory phenomena, manifest on the one hand by hyperplastic changes without hyperfunction and on the other hand by hyperplastic changes with hyperfunction, giving rise to almost any conceivable picture of endocrine imbalance. These facts must always be borne in mind in consideration of the etiology of endocrine imbalance.

C. Environmental influences: "The child is father of the man." I am sure many extrinsic factors influence favorably or unfavorably the glands of internal secretion. In consideration of conditions such as dwarfing it must be borne in mind that pituitary deficiency is by no means the entire cause of the dwarfing process. We can mention that certain chronic diseases such as congenital heart disease, congenital syphilis, diabetes mellitus, vitamin deficiencies such as rickets, and many other conditions give rise to the dwarfing process. While they should belong in the classification perhaps of congenital causes or even hereditary influences they are mentioned along with environmental influences.

In the regions where goitre is endemic, what is described as adolescent goitre is not infrequently observed, the result of course of iodine deficiency in this important period of life. In order for the human body to maintain itself in physiologic equilibrium, adequate nourishment to the tissue must be maintained.

The effect upon the pancreas of continued overabundance of carbohydrates is well known and there seems to be a definite predisposition to diabetes mellitus in those patients who long continue to overindulge in excessive amounts of this food. The influence of vitamin deficiency can conceivably alter the functional balance of these structures. Isolation of cevitamic acid from the adrenal glands has been accomplished. When the final chapters have been written concerning endocrine hormones, it is my belief that they will be found in some biochemical relationship to the vitamins.[4] Mention must be made here of the recent works concerning the relationship of sodium metabolism to adrenal function. It has been mentioned heretofore concerning the influences of iodine deficiency upon the thyroid gland and we recognize the relationships of parathyroid influence upon calcium and phosphorus metabolism.[5] McCarrison calls specific attention to the fact that both diet and filth (bacteria) play an important role in favoring the development of goitre and that they are more goitrogenic if and when the intake of iodine is low and are usually less goitrogenic or entirely innocuous in the presence of an excess of iodine.[6] One concludes from such observations that for an individual to remain in physiological balance, or in other words, to be in a state of normal health, there must be granted certain premises:

1. The protoplasmic patterns must be in balance.
2. The conditions *in utero* must be favorable.
3. The environmental factors must be adequate.

Either one of these conditions not normal exposes the individual to a physiological imbalance of his endocrine glands.

The symptomatology will be considered in the light of both hyper- and hypo-secretory phases. I shall not consider the surgical nor gynecological phases of this subject as they will be discussed later on today.

At this time I wish to refer to certain animal experiments that have taken place in recent times that will shed some light upon the hyper- and hyposecretory functions. The pituitary gland has been called the master gland inasmuch as it plays such an important role in the physiology of the body by reason of the elaboration of so many substances which influence profoundly other glands. This can best be accomplished by an enumeration of the

changes that take place in the animal body when the pituitary gland is ablated. In the young animal:

1. Cessation of growth
2. Growth of hair is retarded
3. Secondary teeth do not erupt
4. Epiphyseal closure is retarded
5. Sexual development is inhibited

In the adult animal:

1. The growth of hair and healing of wounds are retarded
2. There is definite decrease in weight
3. The b.m.r. is substantially reduced
4. Hypoglycemia appears
5. Increased sensitivity to insulin
6. Most important, there is a definitely marked atrophy of all the glands of internal secretion.

The reasons for these changes appearing are because of the lack of elaboration of the following groups of hormones that are now generally believed to be produced by the pituitary gland:

1. The growth hormone
2. Gonadotropic hormone
3. Lactogenic
4. Thyrotropic
5. Ketogenic
6. Diabetogenic
7. Adrenotropic
8. Parathyrotropic

The prerequisite for the manifestations of these influences must be the specific hormone elaborated by the pituitary act in the presence of that specific glandular tissue. In other words, thyrotropic hormones of the pituitary exert no action in the absence of the thyroid gland. This condition prevails for the other hormones mentioned.

A beautiful example of the manifestation of the relationship of pituitary function to that of the pancreas is illustrated by the hypophysectomized pancreatectomized animal. The laboratory animal whose pancreas has been removed immediately develops diabetes mellitus and dies very soon in diabetic coma, whereas the animal that has been pancreatectomized then hypophysectomized does not die in diabetic coma but may linger for many days and weeks and dies not of diabetes, but from emaciation not wholly unlike that described by Simmonds, namely, cachexia and emaciation. This is a brief reference to a vast amount of experimental data that has accumulated from many laboratories throughout the world by different investigators. Many of their conclusions are similar; some are of course, dissimilar.

In man certain conditions appear when there is hyposecretion of the pituitary glands. These are enumerated as follows:

1. Hyposecretory conditions of the pituitary glands.
   a. Before puberty
      (1) Adiposogenital dystrophy.
      (2) Dwarfism or infantilism.
      (3) Cryptorchidism.
   b. After puberty
      (1) Simmonds' disease (pituitary cachexia).
      (2) Impotence and sterility.

The clinical picture of adiposogenital dystrophy is characterized by a characteristic adiposity:

1. Distribution of girdle fat about the abdomen and buttocks.
2. Large breasts.
3. Shoulder pads of fat and amenorrhea. Undoubtedly gonadotropic and ketogenic hormone elaborated by the anterior pituitary are deficient in this condition.

The symptoms of infantilism:

1. A child that never reaches maturity.
2. Skeleton development does not take place.
3. Voice remains high pitched.
4. Body hair is scarce over the body.
5. The sex glands are not developed.
6. There is retarded mental development.

There are many other mixed types of hypo-pituitary, hypo-thyroid and hypo-gonadal dystrophies that are not within the province of this discussion.

Hypofunction of the pituitary gland in adult life has been described by Dr. Simmonds and is known as Simmonds' disease or pituitary cachexia. Cardinal symptoms are:

1. Emaciation.
2. Anorexia.
3. Mental lethargy and profound depressed state of mind.
4. Gastro-intestinal disorders.
5. Somatic weakness, and many others.

Conditions of hyperfunction of the pituitary in adult life are two:

1. Acromegaly.
2. Gigantism.

If the hypersecretion of the pituitary gland becomes manifest before ossification has been completed, a state of gigantism results, whereas, if the abnormal function takes place after complete ossification, the condition of acromegaly is produced. On the one hand we have the individual of gigantic proportions, with large head, heavy features, and hands with the so-called spade-like characteristics. Individuals oftentimes complain of severe headaches with sometimes diminution in the fields of vision, optic atrophy and temporal hemianopia.

Condition of hypo-secretion of the pancreas: The most important condition associated with hypo-secretion of the pancreas is of course concerned with the disease which we speak of as diabetes mellitus. In this disorder there is of course decreased production of the active principle of the pancreas, namely, insulin. It is now generally recognized that there are extra pancreatic influences which undoubtedly influence the carbohydrate tolerance and intolerance. It would seem that the insulin resistance so often encountered in patients with diabetes is caused by extra pancreatic factors. Those which respond in a normal fashion to the administration of insulin would seem to be primarily pancreatic. The influences here of other endocrine glands would seem to play a considerable part in connection with this disorder. Our hopes brighten with the dawn of a new era and it is spoken of by Joslin as the Hagedorn era. Joslin says "The Banting era which we are now leaving was wonderful and even more was awe-inspiring. During these last fourteen years you and I have seen diabetics gain hope and strength. Insulin has breathed life into their dry bones. They stand upon their feet a mighty army." Now comes another great achievement in which very soon you and I will perhaps administer one dose of insulin daily to maintain the carbohydrate balance of the patient, whereas, we have been previously giving three. The fears of a typical and terrible midnight insulin reaction will soon, I am sure, be a thing of the past. You and I have patients getting insulin with whom there are daily fears of fatal hypoglycemic reactions with the old insulin. It is an inspiration to recognize this new preparation which will soon be available to all diabetics. What an achievement this becomes in a life's work of a single man. We bow in tribute to the investigative ingenuity of Dr. Hagedorn. Moreover, this brightens the future for other achievements not only as it concerns diabetes but other members of the chain of endocrines.

Hyperfunction of the Pancreas.

Whenever there is hyperplasia of the pancreatic tissue or tumors of the pancreatic islets, an overproduction of insulin occurs which gives rise to the clinical syndrome now known as hyper-insulinism. The symptoms of course vary with the degree of hypoglycemia existing. There are many mild types of hyper-insulinism giving rise to low grade types of symptoms of borderline character. The symptoms of the borderline hypoglycemic group may be listed as follows.

1. Patient oftentimes complains of hunger coming on comparatively early after the ingestion of a meal.
2. Following the appearance of the sensation of hunger, if food is not soon taken the individual complains of weakness, nervousness, and not infrequently headache, all of which symptoms are relieved almost immediately by food.

Recently I had a patient under observation, a young man, aged twenty-five, who for the past ten years has had headache, migraine in type, coming on usually between 11 A. M. and 12 noon. He had sought many plans of treatment including many clinical studies by several competent physicians, but with no relief from the headache. Inquiry into his plan of eating disclosed somewhat as follows: A large meal was taken at 5 P. M. There was no food on retiring. He took a breakfast consisting of one slice of toast and coffee. No further food was taken until the lunch hour about 12 noon. Blood sugar examination with a fasting stomach at 8 o'clock in the morning was 90 mgs. and at 11 o'clock was 65 mgs. Re-arrangement of food habits by having him eat a large breakfast high in calories and taking a cracker or some other nourishment between breakfast and lunch has totally and completely relieved all of this patient's symptoms with no sign of headache since that time. We must take in consideration the mild types of hyper-insulinism, bearing in mind always, in my opinion, that a blood sugar examination made just before the patient complains of symptoms is of considerably more value than taking routine fasting blood sugar in the morning several hours before the onset of symptoms.

We must bear in mind, however, that there are

other forms of hypoglycemia which cannot be described under the clinical term of hyper-insulinism that are caused by extra pancreatic factors such as adrenal disease, pituitary disease, thyroid disease, liver diseases, renal glycosuria, prolonged muscular exercise. In the more profound degrees of hypoglycemia with very low blood sugars, one must bear in mind the possibility and oftentimes probability of pancreatic islet tumors. With unrelievable hypoglycemic symptoms it is an act of wisdom to consider exploration of the pancreas, because brilliant results have been reported by the removal of these islet tumors.

The Thyroid Gland.

There is perhaps no more beautiful monument in all of medicine to the relief of human suffering than is seen in the combined cooperative efforts between surgeons, laboratory investigators, and internists in the treatment of thyroid disorders. It is now generally recognized that persistent hyperthyroidism must, after careful diagnostic study and adequate medical management, be relieved by surgical measures. We must bear in mind, however, the physiopathological changes associated with these disorders in order to interpret failures so frequently encountered and so difficult to explain. In hyperplastic conditions of the thyroid we can assume from interrelationships of glandular functions that there must be changes taking place in the other glands along with those obvious ones appearing in the thyroid. When enough of the gland is removed to prevent recurrence of thyrotoxic symptoms, I wonder if changes do not occur in some of the other important glands with resultant alterations in the physiology of their hormones.

Hypothyroidism.

In the discussion of this syndrome it becomes again a matter of degree. Everyone is familiar with the classical symptoms characterizing the patient with myxedema and cretinism. It seems that the most important difficulty arises in the milder types of hypothyroidism occurring in both children and adults. Happily enough, however, we have a means of measuring the basal metabolic rate computed on the basis of the average for normal individuals. When we come to the small child, however, it is oftentimes difficult to get very much help from basal metabolic rate determinations. It has been reported that high cholesterol values are of value in estimating thyroid hypofunction; however, there is considerable disagreement among those writing about the subject. In my own hands the estimation of blood cholesterol as an important diagnostic criterion in thyroid disorder has been entirely disappointing and for the moment I have abandoned its use. In those cases in which repeated estimations of the metabolic rates do not give the necessary information, I have depended upon the clinical symptoms and relied on the therapeutic tests by the cautious use of small doses of thyroid gland substance. I have previously called attention to the influences of thyroid disorder upon certain allergic conditions and it is my opinion that many unexplained symptoms are oftentimes interpreted in terms of hypometabolic phenomena by carefully done and consecutively repeated basal metabolic rate determinations.

The Adrenal Gland.

The symptoms of absolute failure of the adrenal gland characterized by those classical symptoms described many years ago by Addison need no further elaboration at this time. I do wish, however, to call attention to the mild degrees of adrenal insufficiency that are characterized by the term asthenia. Chiefly among which are: 1. Hypotension; 2. Some pigmentation of the skin; and 3. Vertigo, general nervous instability, exhaustion and fatigue.

The clinical use of small amounts of cortical extract will sometimes establish the existence of such a deficiency.

The conditions of hyperactivity of the adrenal glands have been concerned largely with a production of an excessive amount of epinephrin. Hypertension has been found in many cases to be associated with paraganglionic tumors. Elevated blood pressures have also been seen in association with cortical tumors and hyperplasia of the cortical cells. Some of these tumors have been accompanied by hirsutism, amenorrhea and obesity.

The beautiful work of Dr. Crile in the denervation of the adrenal gland and the treatment of those disorders which he describes as being associated with civilization are as yet unestimated. Time only will serve to evaluate the vast amount that he and his collaborators have done. His work, however, undoubtedly holds promise for the future.

Despite the vast amount of laboratory and clinical data that has accumulated concerning a better understanding of the glands of internal secretion,

therapeutic solutions to many of the perplexing problems are still very limited. However, much progress has been made and much more will be forthcoming by reason of the knowledge gained in the physiological mysteries that heretofore have shrouded these structures.

I shall attempt to outline briefly the more important therapeutic achievements at this time. The treatment of adiposogenital dystrophy has by and large been found to be somewhat unsatisfactory. Recently some encouraging reports have come from some workers that this condition may be treated successfully. So frequently patients with this syndrome have correspondingly low metabolic rates. The judicious use of anterior pituitary-like sex hormone (Antuitrin-S) along with thyroid gland substance and careful attention to caloric intake have given encouraging results.

Since the advent of the anterior pituitary-like sex hormone, first described by Aschheim and Zondek, of Germany, and Smith in this country, appearing in the urine of pregnant women, this preparation has become available in a much more purified form than could be possibly isolated by the present-day known methods of specific pituitary hormonal extraction. Given a case of adiposogenital dystrophy, the careful administration of this hormone along with the judicious use of thyroid gland substance together with attention to other details, continued over a sufficiently long periods of time patiently and persistently, will, I believe, in the vast majority of cases yield satisfactory results. In the management of pituitary dwarfism or infantilism a satisfactory beginning has been made with the use of anterior pituitary-like hormone recovered from urine from pregnant women together with pituitary extract at least rich in the growth factor. Most encouraging results have come from the use of anterior pituitary-like sex hormone parenterally administered. It is of value in the treatment of cryptorchidism.[7] The writers reporting these cases suggest that the ages between nine and thirteen years are the most advantageous for the institution of hormone therapy.[8] Such other conditions as enuresis and diabetes insipidus have been successfully treated with this hormone. There are many interesting reports in the literature concerning the treatment of Simmonds' disease.[9] Recently Herman has reported the successful treatment of three cases of Simmonds' disease or pituitary cachexia with anterior pituitary extract. It is now generally recognized that pituitary gland extract of the anterior lobe is of definite and specific value for the relief of this disorder. The consensus of opinion seems to be that the oral administration of the pituitary gland preparations are of little value. I would call attention to the milder forms of pituitary cachexia that undoubtedly do exist. In some of those asthenic malnourished and hypo-sexed constitutionally inadequate individuals it would seem a logical procedure to use pituitary gland substances as a therapeutic test. It may be that many of our present-day difficult office problems may be relieved by the use of specific hormonal extract in some of those difficult cases in which no remedy on earth seems to be of any avail.

The treatment of those conditions associated with hyperpituitarism such as acromegaly, gigantism and pituitary basophilic tumors is limited to surgical removal of the tumor or irradiation of the pituitary region. Encouraging reports have come concerning irradiation. In 1913[10] Beclere reported a case of a girl with acromegaly who had symptoms of severe headache, dizziness, vomiting and serious visual disturbances, who showed some evidence of gigantism as well as sexual infantilism. Improvement of her symptoms was shown in two weeks and one year later she was symptom free by irradiation.[11] Dr. Barr reported a case of a farmer boy with severe headaches who was relieved and the progress of the disease arrested by the use of irradiation therapy. Pituitary basophilic tumors have been reported to yield to X-ray therapy. This seems the most encouraging outlook because surgery at the best encounters considerable difficulty with the removal of these tumors.

Treatment of the one major hyposecretory secretion of the pancreas, diabetes, lies not within the province of this presentation. In passing I should like to mention, however, that the treatment of this disease with specific pancreatic hormonal substance represents in my opinion the major achievement in endocrine therapy.

The treatment of hypersecretory conditions of the pancreas causing hypoglycemia of severe degree at this moment rests with the surgeon. However, milder cases of hypoglycemia as the result of pancreatic hyperinsulinism can be treated in a most successful fashion by a properly regulated dietary program carefully outlined by the physician and intelligently executed by the patient.

XUM

Specific hypersecretory disorders of the thyroid like those of the pituitary and pancreas rest with the surgeon. In those conditions of absolute failure of the thyroid function, as seen in myxedema and cretinism, no more brilliant therapeutic results can be achieved in any disorder encountered in all medicine. Almost overnight a lethargic, sleepy, anemic, chilly, scaly, constipated, toad-like individual can be transformed into a normal human being. The cretinic moron type of undisciplined impossible child can be likewise changed to one that brings joy and pride to its anxious mother. The milder states of thyroid hypofunction must be ever kept in mind. Many of these patients are restored to normal health by the careful use of thyroid preparation properly administered over sufficiently long periods of time. One must bear in mind that one might be dealing with glandular deficiency which although not absolute as seen in myxedema may continue throughout life and thereby need medication throughout life. Many of our failures have been because we have failed to emphasize to the patient that once the presence of the deficiency has been definitely established, it becomes necessary to take this substance over long periods of time. I would emphasize the use of small doses of thyroid gland substance in the beginning. I have seen many failures because the physician started off with too large a dose. Myxedematous and cretinic patients frequently are very sensitive to the specific gland substance and too large a dose will react violently.

Hypersecretory conditions of the adrenal glands like those of the thyroid are in the hands of the surgeon.

The most important hyposecretory disorder of the adrenals was described by Addison many years ago and up until a few years ago was a hopeless malady. With the isolation of the specific hormone from the adrenal cortex, some of these hopeless patients have been saved. The relationship of adrenal function to sodium metabolism has been previously referred to and it is worthy of our consideration to bear in mind the importance of salt balance in patients with Addison's disease whom we are treating with cortical extract. Here again in the borderline cases, the careful use of small doses of cortical extract as a therapeutic test may be sometimes effectively used.

I have purposely omitted some of the links in the large chain of endocrines, not because of their unimportance, but because this discussion is already much too long. Oftentimes we feel rather helpless with patients before us with perplexing mixtures of endocrinopathies and oftentimes there is so little that can be done for the sufferer. However, we must not be discouraged but look hopefully to the future that holds boundless possibilities. As referred to before, Dr. Joslin speaks of the Hagedorn era in the treatment of diabetes mellitus. The thought here so inspiring is that by a process of mixing a substance with specific pancreatic hormone the effects of this hormone will be tremendously prolonged. As a matter of speculation, might it not in the not far distant future be applied to other hormones prolonging their effects to increase therapeutic efficacy?

SUMMARY

1. An attempt has been made to outline some of the etiological factors responsible for endocrine imbalance.

2. Brief mention is made of certain laboratory experiments upon the endocrines.

3. Mention is made of some of the cardinal symptoms of hypo- and hyper-secretory functional disorders.

4. Some of the more important therapeutic procedures are outlined.

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THE ENDOCRINES IN GYNECOLOGY AND OBSTETRICS.*

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Our conception of the function of the organs of reproduction as well as some of the pathological and clinical problems has been considerably influenced by the development of knowledge regarding the endocrine glands. All of these glands probably contribute, but the principal actors in this drama are the ovary, pituitary and thyroid. We may recall that there are two ovarian hormones; the follicular hormone, or estrin, and the corpus luteum hormone, or progestin. Estrin is secreted by the follicle before and after ovulation, and progestin from the corpus luteum after ovulation. Estrin is also supplied by the placenta. The anterior pituitary supplies two hormones particularly concerned with the sex organs: prolan A, which stimulates the primordial follicle to a full-grown graafian follicle, and prolan B, which is the so-called luteinizing hormone.

The thyroid through its metabolic functions controls all to some extent. The ovarian and pituitary hormones are recovered from the blood and urine in certain conditions. Interest in this subject has been greatly increased by the discovery of both qualitative and quantitative biologic tests for these hormones. The Allen and Doisy[1] biologic test for estrin was first described by them in 1923 and has been accepted as a standard both as a quantitative and qualitative test. It is useful not only in determining the presence and quantity of this hormone in the blood or urine, but in evaluating the potency of therapeutic preparations. The Fluhmann test for the luteinizing hormone of the anterior pituitary has similar purposes. Microscopic study of slides from biopsy of the endometrium has proved of considerable diagnostic value, as well as a useful check on questionable results of organotherapy.

A few valuable therapeutic agents have been made available and some of previous repute have at least been placed under considerable suspicion of being worthless.

A consideration of the clinical application of any knowledge or progress in this subject may be of more interest at this time. The disorders of menstruation constitute a large proportion of gynecological complaints, and probably all of these are in some way related to endocrinology. It would first seem suitable that we consider briefly what is thought to be the normal physiology of the menstrual cycle. The development of the follicle under stimulation of anterior pituitary, or prolan A, is the first step. This occupies the first half of the cycle, and ends with rupture of the graafian follicle, or ovulation. The development of the corpus luteum occurs during the second half of the cycle. Estrin is secreted by the follicle and progestin by the corpus luteum. Estrin stimulates growth of the endometrium and is responsible for the change of the endometrium from the resting stage at the end of menstruation to the proliferative stage. Progestin changes this to the secretory or premenstrual phase. Each of these stages may be recognized by microscopic study.

Estrin and anterior pituitary hormone, prolan B, may be found in blood and urine in certain conditions and have the peculiar characteristics of appearing in varying quantities according to the time of the cycle. Estrin content is greater about the time of ovulation and just before menstruation, taking a sudden drop at the beginning of menstruation.

DYSFUNCTIONAL BLEEDING: This is perhaps the most serious variation from normal. Its nature varies according to the age of the patient, but almost invariably the premenstrual or secretory phase is absent, the proliferative stage having progressed to a condition typical of hyperplasia. In practically all cases under forty years of age it is associated with pituitary deficiency. This is not the case in premenopausal bleeding as the anterior pituitary is here hypertrophied and excess of secretion is found in the blood. The anterior pituitary, so-called luteinizing hormone, has its greatest usefulness here. It is known to cause luteinization in test mice, and was at first thought to correct the bleeding in this way. Apparently this is not true in the human species, but it does in a considerable number of cases relieve the bleeding. It is well known that in a large number it does not. Its usefulness is

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greater in the young. Bleeding of the premenopause is not usually controlled by it. This is not surprising when consideration is given to the fact that an excessive secretion of anterior pituitary hormone is already present, due to the hypertrophy of the anterior pituitary which occurs after complete ovarian failure. This group usually needs curettage and radium in appropriate dosage, and fortunately surgery is not so undesirable as at an earlier time. When anterior pituitary like hormone (pregnancy urine hormone) is used it is best given at the beginning of the flow, 100-200 r. u. daily for five or six doses. Since progestin has been made available, though still expensive, its use would appear to be a more direct method of attack. Carter and Hamblen[2] have used it with good results, and showed the results on the endometrium also. Wilson and Elden[3] report the use of progestin in five cases of uterine bleeding with hyperplasia. They used very small doses, 3/25 m. u. giving 1/25 daily for three days in one case and much larger in the others. All cases were apparently improved.

Hypothyroidism is often a factor, particularly in young girls, and the use of thyroid is usually effective here, but some require transfusion and the use of parathyroid hypodermically and calcium in the vein. (I have had good results from corpus luteum before progestin was available, given intravenously in a very severe case of bleeding at the first menstrual period.)

Certain ovarian tumors affect very decidedly the function of menstruation, principally by the secretion of hormone. Granulosal cell tumors secrete large amounts of female sex hormone and may start the periods at a very early age and cause other evidence of precocious sex development, or the periods may return with regularity years after the menopause. It is interesting here to note another growth, the arrhenoblastoma, which secretes the male hormone, and a patient affected by this may develop many secondary male characteristics which again revert to female on removal of the tumor.

Amenorrhea is most complicated from an endocrine standpoint. The endometrial curettings may show an atrophic condition, a hyperplasia, or even a premenstrual endometrium; the latter has been explained by persistence of the corpus luteum; the atrophic by either pituitary or ovarian failure. The hyperplasia in some cases is thought to be due to persistence of a follicle giving a continued and excessive supply of estrin.

The blood findings may give some help in classifying the causal factors. Blood tests for estrin or anterior pituitary taken with the endometrial findings give valuable information as to treatment and prognosis. If anterior pituitary is found regularly in the blood, it is good evidence of ovarian failure of severe nature, such as surgical removal or radium or X-ray would give, and therefore the outlook is poor. The general type and appearance of the individual gives a valuable suggestion as to the condition. The typical appearance of the hypopituitary patient, excessively fat and with abnormal distribution, is well known (Fröhlich's disease). Pituitary cachexia, Simmonds' disease, is another type of pituitary deficiency, where amenorrhea is the first symptom.

The typical hypo-ovarian subject is often thin and visceroptotic—a tall, slender type—is usually nervous and has many complaints and may have had many unsuccessful operations. There are many types between these extremes, some being of normal appearance.

Thyroid deficiency is the leading factor in a small but important group. This more often occurs in young unmarried women and sometimes after pregnancy. The thyroid group are more easily diagnosed and the treatment is obvious. In the group in which the ovarian function is demonstrated to be absent no amount of treatment will restore the periods. One case of Simmonds' disease[4] has been reported cured by anterior pituitary like substance from pregnancy urine.

Estrin in large amounts followed by progestin gives uterine bleeding, but the cost is almost prohibitive and the necessity for continued repetition is most discouraging. If there are no other symptoms it may be well to acquaint the patient with the fact that absence of periods is not in itself harmful. Many believe that it leads to disaster and therefore demand much unnecessary treatment.

STERILITY: At present we assume that all other causes of sterility are eliminated. Any failure of normal physiology of the endocrines seems to play a part here. Conception can only take place near the time of ovulation, which is about fourteen days before the beginning of the next period. Some women notice a slight, low abdominal pain at the time of ovulation. This may be followed by a dis-

charge of a small amount of mucus. This information is used as a means of contraception as well as conception. Undeniably ovulation and conception sometimes occur at other times. There may be no ovulation although menstruation is regular. Examination of endometrial scrapings before expected period will show absence of secretory phase of endometrium, which denotes absence of progestin and absence of ovulation. Failure to ovulate may be corrected by anterior pituitary treatment in rare cases.

Amenorrhea is most discouraging, but even here conception sometimes occurs. It is not known just how the thyroid is related but it is often a factor and any unexplained case calls for study of thyroid function. Even if the basal metabolism rate is not notably low, small doses of thyroid may be helpful.

Progestin would seem to help by preparing the endometrium if fertile ovulation should occur. Intrauterine instrumentation may cause ovulation, and this may be the explanation of conception which follows D and C, stem pessary (a rare occurrence), or insufflation of the tubes. The quality of the germ plasm is considered by embryologists to be an important factor. A poor quality may result in abortion if conception does occur.

DYSMENORRHEA: Estrin stimulates uterine contractions. Progestin relaxes it. This property of progestin has suggested its use in dysmenorrhea. Elden and Wilson[5] have recently reported seventeen cases of severe dysmenorrhea treated with progestin, 2/25 to 1 r. u. during the six days previous to the menstrual period, with 47 per cent complete relief. This would appear to be better than has been reported by other means except possibly separation of pre-sacral nerves or hysterectomy. It is also recommended for treatment of after pains. Estrin is recommended in dysmenorrhea associated with hypoplasia and irregular periods, and in a few cases is certainly helpful. When dysfunction of the thyroid can be demonstrated, thyroid medication has been found to be helpful.

MENOPAUSE: It is to be understood that the menopause in the majority of cases is clinically nothing except the cessation of menstrual periods and relief from the burden of child bearing. There is a group which is severely troubled by the familiar vasomotor and other nervous symptoms. Here estrin therapy has its principal usefulness and if given in sufficient dostage often gives satisfactory relief.

Senile vaginitis, a secondary symptom of the loss of ovarian function, has been greatly relieved by the use of estrin in adequate amounts.

Gonorrheal vaginitis in children has long been very difficult to cure, requiring a year or more. This is believed to be due partly to the undeveloped character of the mucous membrane of the genital tract, which is very susceptible to and harbors the germ. In the adult the many layered squamous cell surface of the vaginal tract is resistant to the gonococcic infection. Lewis[6] and others have used it and report that estrin therapy changes the vaginal mucosa of children to approximate the adult type of squamous cell epithelium which is resistant, and results in speedy cure. It probably will require time and much clinical experience to fully evaluate this.

PREMENSTRUAL TENSION: This is a name given by Frank[7] to a group of symptoms familiar to all who treat women. It is principally characterized by extreme nervousness, vascular instability and breast hyperplasia preceding the period. This condition is definitely relieved when the menstrual flow begins. The findings consist of an excess of estrin in the circulating blood, and a decrease of excretion. Frank found only about 350 m. u. being excreted during the cycle, the average normally being about 1500 m. u. The threshold for estrin is high rather than an excessive production. He has obtained relief in some cases by giving a bottle of citrate of magnesia and no water until the purgative acts, after which water is given freely. Geo. Van S. Smith[8] observes that progestin stimulates estrin excretion, and it is suggested by Maser and Goldstein[9] as a remedy.

The relation of the endocrines to the physiology of the breasts is very definite, though the exact processes are not so clearly understood. The breasts are subject to a sex cycle somewhat similar to that of the endometrial cycle and are characterized by stimulation and growth of the epithelial cells of the acini, followed by regression. Certain errors of function carry this process on to a pathological condition known variously as chronic mastitis, mazoplasia and mastopathy. Whitehouse[10] believes this stimulation is due to corpus luteum. He has treated twenty cases with theelin and reported seventeen relieved after a few months treatment. His hypothesis is that the excessive luteinization is due to anterior pituitary and therefore treatment should

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be directed toward inhibition of the hypophysis, which is his reason for using theelin.

Cutler[11] suggested the use of ovarian residue and reported thirteen of fifteen cases relieved.

Taylor[12] recently made a study by quantitative tests, in a series of breast cases, for estrin and anterior pituitary hormones, but could find no constant variations on which to base a definite conclusion.

The relation of estrogenic substances to the development of cancer was considered by Loeb in 1919. A number of investigators have reported on this since. Recently Gardner, Smith, Strong and Allen[13] reported the development of mammary cancer in 28 of 126 mice treated 125 days with estrogenic hormones. Also seven of these developed sarcoma at the site of injection. No such results have been shown on the human species. However, these results are of sufficient importance to question the advisability of the long continued use of estrogenic substances in large quantities during the menopause and particularly in cases previously treated for cancer by panhysterectomy or radium, as is now being done. It is conceivable that this hormone might stimulate the development of some latent cancer cells which might otherwise remain dormant. The stimulating effect of pregnancy on malignant growth is well known. It is possible that this may be due to the increased estrogenic content of the blood at that time.

PREGNANCY: During pregnancy at least two hormones appear in the blood and are secreted in much larger amounts than at any other time. The source of this increased supply is probably the placenta. Estrin is increased but does not reach its peak until the latter part of pregnancy. The anterior pituitary like hormone appears considerably increased soon after the missed period. This fact is responsible for the well-known diagnostic pregnancy test of Aschheim and Zondek and the Friedmann modification of that test. These tests are of unquestionable value and are remarkably accurate. Even allowing for errors in technic and interpretation, they cannot be expected to be 100 per cent correct as they only show the presence of a relatively increased amount of anterior pituitary like hormone. At the menopause or after ovariotomy, the anterior pituitary hypertrophies greatly and gives an increased secretion almost as great as during pregnancy. This condition is more likely to give what is known as reaction one, or large follicles without hemorrhage into them. This diagnostic procedure is of even more value in the diagnosis of mole, or chorioepithelioma. The anterior pituitary like hormone should not appear in the urine longer than two or three weeks after labor. If it continues for a much longer period it is highly suggestive of chorioepithelioma, in which case the reaction may be obtained by even 1/10 the amount of urine required in the pregnancy test. If this test is negative it does not entirely rule out chorioepithelioma, as at least one case[14] has been reported in which the tumor was apparently cut off from the circulation and did not give positive reaction. The value of this test is emphasized by the well-known fact that curettage is unreliable as a diagnostic procedure.

A skin test for pregnancy has been described by Gilfillen and Gregg.[15] This is based on the theory that if anterior pituitary like substance is present in the system the woman will not react to intradermal injection of this substance. They inject 2 mms. of fresh antuitrin-S intradermally. In fifteen minutes to half an hour characteristic skin reaction appears if the patient is not pregnant and harbors no decidual cells.

It has long been known that the presence of the corpus luteum of pregnancy was necessary to the continuance of early pregnancy. Since the availability of progestin, the product of corpus luteum, this has been found to be a valuable agent in the treatment of threatened abortion,[16] particularly habitual abortion of unknown cause. It is well to remember that the use of estrin in early pregnancy may cause contraction of the uterus and abortion. Habitual abortion is so often associated with low basal metabolism rate that this must be considered.

The demands made on the thyroid during pregnancy are considerable and result normally in increased thyroid activity. The basal metabolism rate usually increases as much as twenty points, but drops to the original level soon after delivery.

LABOR: The use of pituitrin, or the posterior pituitary hormone, in labor is too well known. It may be useful occasionally as an auxiliary in the medical induction of labor, given in 2 mm. doses, particularly after rupturing the membranes, but I regret to say that it is still being used in the first and second stages of labor. Some of these victims have a ruptured uterus as a result, and in others

the bad result is not apparent at the time, but the injury to the cervix may give much disability later.

The use of adrenalin to relax the spasm of the uterus in labor, commonly known as Bandl's ring, was first suggested by a member of this Society, Dr. M. P. Rucker, and has been accepted generally as a valuable contribution.

No attempt is made here to make an exhaustive review of this subject. The time limit alone makes this impossible, but an effort is made to state the endocrine problem as related to gynecology and obstetrics in as simple terms as possible. Attention is called to some of the principal clinical conditions involved, particularly the more recent developments.

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SURGERY AND THE ENDOCRINES.*

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Every surgical operation is an experiment in endocrine function, no matter how simple the procedure may be nor how apparently unrelated to the endocrine glands. The initial fear of operation, the action of preliminary and anaesthetic drugs, loss of blood and the other phenomena that culminate in surgical shock, all evoke endocrine responses which in certain instances, may be beyond the powers of individual glands. Although the surgeon must be constantly aware of the possible dangers that may result from his insults to the endocrine economy, these general physiological considerations cannot be more than mentioned here.

Except for the ancient practice of castration, the history of surgery of the endocrines begins with the surgery of the thyroid, which is still the most common and probably the best understood applica-

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tion of surgical therapy in the endocrine field. It may be well to emphasize the fact that any detailed reference to the treatment of goitre has been here deliberately omitted, implying not that there is nothing new in the surgery of thyroid disease, but that adequate discussion of this much cultivated subject would prevent the discussion of anything else.

I have attempted to classify the contacts of surgery with the endocrine system. (Table I.) In this classification only those surgical attacks that from assembled evidence seem to be firmly established are presented without brackets. The bracketed material includes not only surgical concepts that will probably not survive, but also certain approaches that may become established surgical procedure in the future.

Attempts have been made to carry over into other hyperfunctional endocrine states the principle established in thyroid disease of greatly reducing the bulk of hyperplastic tissue. These attempts in relation to the parathyroid and the pancreas will be discussed. The results of the application of this principle to the adrenal are not yet convincing.

TABLE I.

I. DISEASES OF SINGLE ENDOCRINE GLANDS
- A. Hyperfunction
  - 1. Hyperplasia
    - a. Thyroid
    - b. (Pancreas)
    - c. (Parathyroid)
    - d. (Adrenal)
  - 2. Functioning neoplasms
    - a. Pancreas
    - b. Parathyroid
    - c. Gonad, male and female.
    - d. Pituitary
    - e. Adrenal, cortical and medullary.
- B. Hypofunction
  - 1. Substitution therapy (often a medical or gynecological problem)
    - a. Insulin
    - b. Parathormone
    - c. Thyroxin
    - d. Adrenalin
    - e. Cortin
    - f. Gonad fractions
    - g. Pituitary fractions (undescended testis)
  - 2. Direct attack
    - a. (Transplantation of glands)
  - 3. Indirect attack
    - a. (Sympathectomy, pancreas)
    - b. (Ligation of pancreas)
- C. No disturbance of endocrine function
  - 1. Hypertrophy
    - a. Non-toxic goitre
  - 2. Non-functioning neoplasms
    - a. Ovary
    - b. Thyroid
    - c. Pancreas
    - d. Pituitary
    - e. Adrenal
  - 3. Inflammations
    - Abscess, cellulitis, tubercle, etc.
  - 4. Trauma

II. ENDOCRINES AS DRUGS WITHOUT KNOWN OR SUSPECTED DISTURBANCE OF ENDOCRINE FUNCTION:
In treatment of
- A. Haemorrhage
- B. Shock, primary and secondary
- C. Paralytic ileus

III. ENDOCRINE GLAND OPERATIONS TO MODIFY PHYSIOLOGICAL ACTIVITY OF OTHER ORGANS WITHOUT KNOWN DISTURBANCE OF ENDOCRINE FUNCTION.
- A. (Thyroidectomy, total)
  - 1. (Angina pectoris)
  - 2. (Congestive failure)
- B. (Adrenalectomy, partial)

Classification of contacts of surgery with the endocrine system. (The bracketed material represents surgical approaches not firmly established.)

The subject of the functioning endocrine neoplasm is one of the most fascinating of the newer developments of endocrinology. Following the recognition of the effect in animals and man of an overdose of insulin, Harris,[1] in 1923, presented his classical paper on the recognition of hypoglycemic states in man. These conditions are characterized by abnormal weakness in the absence of food, with or without major attacks of insulin shock, ranging from vasomotor collapse through unconsciousness and convulsions to death,[2] attacks always associated with low blood sugar and, except in the fatal cases, always temporarily relieved by the administration of sugar. The surgical importance of this syndrome lies in the fact that it is frequently caused by functioning neoplasms of the islets of Langerhans, which in most instances are surgically removable with complete cure of the condition. In some instances such tumors have not been found, and in some instances such tumors are malignant and cannot be removed.[3]

The problem of the practitioner in regard to hyperinsulinism is two-fold, namely, diagnosis and the choice of cases for surgical consultation. Fortunately the therapeutic test, i. e., the administration of sugar by mouth or by vein during an attack, is a simple procedure which any practitioner can carry out. Adequate laboratory study, particularly of the blood sugar, under hospital conditions is essential before the surgeon can justifiably advise exploration of the

pancreas. The choice of cases for surgical exploration must be made by joint decision of the physician and the surgeon. No conservative surgeon would advise exploration in the minor grades of hyperinsulinism controllable by frequent sugar intake. Those cases should be subjected to surgical treatment, however, in which the attacks are frequent and severe in spite of adequate medical management.

In thirty-five operative cases collected by Whipple and Frantz,[4] twenty tumors were found. All of these twenty cases were relieved of symptoms with the exception of one operative death. In the fifteen cases in which no tumors were found, a partial resection of the pancreas was performed analogous to partial thyroidectomy. In only five of these cases was there relief of symptoms, but in the successful five the resection was more radical than in the remaining ten. Subtotal resection of the pancreas for chronic hypoglycemia has not on the whole represented surgical success and must still be considered as experimental. On the other hand in the resection of pancreatic tumors, we must recognize one of the most striking successes in recent surgical history. It cannot be urged too strongly that the practitioner of medicine be on the alert for this clinical picture, that he confirm his suspicion, first, by the therapeutic test and, second, by blood sugar studies, and that in proper cases he ask for exploration at fit surgical hands.

A second group of functioning neoplasms, the surgical relationships of which have become somewhat stabilized, is a group of tumors of the parathyroid glands with the associated manifestations of hyperparathyroidism. Two distinct forms of the disease are recognized, namely, Recklinghausen's osteitis fibrosa cystica generalisata, and multiple and recurrent kidney stone. Rarer clinical forms have been described, the exact limitations of which are not clear.

Osteitis fibrosa cystica is a disease characterized by multiple cysts of bone which may become obvious clinically by the occurrence of deformities or of pathological fractures. The presence of cysts is associated with muscular weakness and hypotonia, vague joint and muscle pains, and, frequently, by constipation. There may be polyuria and polydipsia. The cysts may be accompanied by general demineralization of the bones with accompanying decrease in stature. Although the diagnosis may be suspected on clinical and X-ray study of the patient, it can be confirmed only by study of the calcium-phosphorus metabolism, a disturbance in which constitutes the pathology of the disease.

This fundamental chemical disturbance consists in a negative calcium balance resulting from an over-supply of the secretion of the parathyroids, namely, parathormone. Continuous loss of calcium from the body results in the withdrawal of calcium from the skeleton and, hence, in the demineralization of the bones and the replacement of bone by soft tissue in the form of cysts. It also results in an increased excretion in the urine of calcium, which may be precipitated in the urinary passages in the form of calculi. Fortunately, the presence of a negative calcium balance is indicated by changes in the amounts of calcium and phosphorus in the blood, easily determined by any competent clinical pathologist. These changes consist in an elevation of the blood calcium and a depression of the blood phosphorus, findings that are essential to diagnosis. It is important for the surgeon to insist on the demonstration of typical disturbances either in the blood values of calcium and phosphorus, or in the level of calcium metabolism before considering operation. Churchill and Cope[5] say "'Exploratory operation' to confirm or disprove a doubtful diagnosis has little or no place in this field. The findings of the laboratory are more exact than the dissection by the surgeon." In other words surgical attack must be limited to those cases presenting characteristic clinical and chemical findings.

The place of surgery in the treatment of hyperparathyroidism resulting from functioning tumors is fixed. The disease is essentially chronic and progressive. Whether its manifestations be calculous or skeletal, ultimately it cripples the patient. The elimination of the cause is necessary and can be accomplished only by surgery. When the tumor has been removed, symptoms ordinarily improve and the progress of the disease is stopped.

We have so far discussed the problem as one of tumor of the parathyroid glands. The question is still unsettled as to whether here also, as in the thyroid and possibly in the pancreas, there may exist a state of hyperplasia of the parathyroids resulting in the same clinical and chemical disturbances. Churchill and Cope, in 1934, were skeptical of this possibility. In 1936,[5] however, they believe that it occurs, and cite six cases among thirty in their series in which the removal of large quantities

of hyperplastic parathyroid tissue without evidence of tumor has resulted in marked clinical and chemical improvement. It is obvious, however, that the surgery of hyperplasia of the parathyroids is still poorly defined. The surgeon will do well not to assume adequate treatment in a case of hyperparathyroidism by removing even moderately enlarged parathyroids without adequate search for tumor, a procedure which presents a technical problem of the most difficult and trying variety.

It is the duty of the practitioner of medicine to urge adequate study by X-ray and by the clinical laboratory of patients in whom this disease might possibly be present. If the presence of the disease is confirmed, it is his duty to see that it comes into the hands of a surgeon capable of a successful and a safe search for tumor.

Time suffices only for mention of the important functioning neoplasms of the pituitary, the male and female gonad and the adrenal, tumors often involving striking alterations in body structure and function. One need only name acromegaly, giantism, pituitary basophilism, gynecomastia, masculinization, precocious puberty, delayed menopause, paroxysmal hypertension and other clinical states to appreciate how extensive a field is here omitted.

The brilliant accomplishments of endocrine substitution therapy are for the most part not germane to our topic. The always vexed question of the treatment of undescended testicle must be discussed, however, in view of a recent attack on the problem from its endocrine aspect. In any large series of cases the results of surgical treatment are found to be disappointing. Wangensteen reported no more than 50 per cent of satisfactory results. Any satisfactory substitute for surgery in this condition must be welcome.

The gonadotropic hormone, the anterior pituitary-like substance which is found in the urine of pregnancy, has been employed both experimentally in the production of premature descent of the testes in animals,[6, 7] and clinically in the treatment of delayed descent in the human patient.

It is important to outline the natural history of undescended testicle untreated. Until recently, the view has been held that testicles undescended at twelve months will never descend.[8] In 1934, Drake[10] challenged this statement on the basis of his experience in a boys' school, and, within the past year, Williams,[11] of England, has presented similar evidence in support. They have found that over 70 per cent of cases descend spontaneously at puberty. Inasmuch as less than 3 per cent of the 2,014 cases observed by Williams presented the anomaly, it is obvious that a very small number of cases will need treatment of any sort. The difficulty, of course, resides in predicting which cases will need treatment.

A careful analysis of reports[7, 9, 12] covering approximately one hundred cases treated with the hormone from pregnancy urine strongly suggests that this treatment actually may repeat in the patient the phenomena observed in the experimental animal. Although in any single case descent during treatment would be equivocal, the high frequency of this occurrence in many reported cases is strongly suggestive, particularly as the descent has so frequently occurred in the course of treatment long before expected puberty.

If it is true that the descent of the testes is favored by this method of treatment, the question of disadvantages or dangers must be raised. Cabot[13] has emphasized the danger of causing premature sexual development with accompanying psychic changes, undesirable at an early age. Dorff[9] has observed undesirable sexual maturity and issues a warning against it. The difficulties attendant on spontaneous sexual precocity are familiar to every pediatrician. The later psychic and sexual experiences of boys treated with hormone are yet unknown, but the reports available present no evidence that later problems have arisen.

Other questions to be raised are those of dosage and of the optimum period for treatment. In the literature are found cases which have apparently responded almost overnight to a dose as small as 100 rat units, and others which have not responded until over 20,000 rat units have been given, in at least one instance 45,200.[9] In general it is apparent that the larger doses are followed more frequently by descent of the testes and that descent is apparently more apt to occur the nearer the patients are to puberty. It would seem logical therefore to defer treatment until early adolescence. This conclusion is further fortified by the fact that precocious sexual development need not then be so greatly feared.

In general, the following program suggests itself. In the absence of hernia or of an acute surgical complication, cases of undescended testis should probably receive no treatment until the beginning of

puberty. If descent does not begin then, it is probably justifiable to make a trial of hormone treatment rather than to accept at once the necessity for surgical handling. If an adequate effect is not observed in the course of a few months, operation must be accepted.

It has been the dream of surgeons for many years that the transplantation of missing glandular tissue from a healthy person to the patient would obviate the necessity for substitution therapy. Within the last three years there has appeared a new principle of attack on this problem.

Many experimental and clinical attempts, largely unsuccessful, have been made to transplant glands of internal secretion. Following the demonstration of the incompatibilities between the bloods of individuals, the assumption has been made that some form of hitherto unrecognized incompatibility between the issue of the donor and the tissue of the host has been responsible for lack of success. Stone[14] conceived the idea that by habituating the graft to the tissues of the host before transplantation this handicap could be overcome. His method of accomplishing this end is to grow the gland in tissue culture in a medium containing the host's blood. After the growth of the gland tissue is established in the new medium, the proliferating cells are transplanted into the host.

In a prolonged series of animal experiments a higher proportion of successful transplantations has been obtained than by any other method.[15] This success has justified the hope that the new principle may in the future offer a solution to this heretofore insoluble clinical problem. Stone has employed it clinically in about fifteen cases of parathyroid deficiency. Of these he records five as probably successful. Several others have shown improvement in symptoms, but are not to be classed as definite cures. A smaller number of thyroid grafts have been done in the human being, none of which he records as successful.[15]

Although the value of Stone's method is still unproven, it offers, both theoretically and on the basis of practical results to date, a conception of unlimited future possibilities. Unfortunately, the present difficulties of tissue culture somewhat limit its adoption.

Under the heading of the indirect attack upon hypofunction of endocrine glands are grouped two procedures which are both somewhat doubtful in rationale and without striking practical effect. The attempt to increase the circulation of the pancreas in so-called "insulin sensitive" diabetes by splanchnic sympathectomy and thereby to increase the activity of the island cells has been undertaken a few times without permanent success. The ligation of the pancreatic duct near the head of the pancreas has had equally equivocal results. This procedure is based upon the observed increase in the number and size of the islands following the classical ligation experiments through which insulin was first isolated.

The diseases of the endocrine glands which are not associated with disturbances of function need not detain us. They include the non-toxic varieties of goitre, the non-functioning tumors of the various endocrine glands, inflammations, and trauma. The surgery of these lesions is in most instances soundly based and to some degree technically perfected.

The employment of substances from the pituitary gland and from the adrenal gland, in the treatment of haemorrhage, shock and paralytic ileus, has furnished a useful addition to the surgical armamentarium, but the indications and value of these modalities cannot be dwelt upon here.

The present trend of surgery towards attempts to modify the physiological balance of organs or systems has found expression in the endocrine field. The most striking of these expressions has been the attempt to modify the activity of the diseased heart by lowering the rate of metabolism through total thyroidectomy. There is a logical objection to the practice of superimposing surgical myxoedema upon a damaged heart. Although the heart may be called upon to do less work, yet at the same time it is probably rendered less able to do that work through decrease of muscle tonus. We must not forget that the myxoedema heart, as pointed out by Christian and others, may be in itself a source of disability. Reports are becoming less enthusiastic for the use of the method in congestive heart failure, possibly because the choice of suitable cases is not yet well established. In angina pectoris results have been somewhat more encouraging. In view of the disadvantages of myxoedema, however, total thyroidectomy should perhaps at the present time yield first place in the treatment of angina to one of the forms of attack upon the sympathetic nerve supply to the heart.

In this hurried and incomplete review of the relationships of surgery to the endocrine system, an at-

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tempt has been made to emphasize the elements of immediate vital interest. Many points of equal importance have had to be ignored or dismissed with a brief reference. As Graham[16] has recently said, the therapy of the endocrine system is now largely surgical. If transplantation of endocrine glands becomes practicable, the therapy of the more marked disturbances of endocrine function will be almost entirely surgical. This greatly increased intimacy of surgery and the endocrine system is in line with the present trend of surgical thought toward physiologic considerations. The surgeon of today, in a sense undreamed of by our professional forbears, must struggle to be not only diagnostician, pathologist, and technician, but also more than a little biochemist and physiologist.

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DISCUSSION OF PAPERS BY DRS. ALEXANDER, ANDREWS AND LEHMAN IN THE SYMPOSIUM ON THE ENDOCRINE DISEASES.

DR. JAMES H. SMITH, Richmond: In dividing the subject of today's symposium into three parts, medical, gynecological and surgical, the division has been made that was followed by the British medical profession in their celebration of the jubilee year of King George V. The parallel is further borne out in that one of the three noted Englishmen who took part in that program included in his review the subject of the hormones. We are, therefore, following a distinguished precedent.

Starling's idea of chemical control, the idea to which the name hormone or messenger has been applied, dates back no further than 1905. When we consider its newness, it is truly remarkable to contemplate the progress that has been made. That progress is strikingly indicated and helpfully summarized in the papers just read.

We are at a stage in the development of endocrinology when it is possible to believe that anything may occur.

Because this is so, we must try constantly to distinguish between what we know clinically and what we know physiologically. This distinction was impressively drawn in one of Novak's recent papers when he said: "If this paper dealt with gynecologic endocrinology instead of gynecologic organotherapy, it would be difficult to crowd within its restricted limits a recital of the brilliant accomplishments within that field. . . . It is not so difficult," he added, "to find space for the accomplishments in the field of organotherapy."

In discussing the excellent and practical papers that have been presented, my remarks must necessarily be general in character. Even so, trying not to be too vague, we may think of the present body of knowledge related to the ductless glands as divisible into three parts. The speakers have already indicated such a differentiation. First, there is a large domain which the physiologist is exploring but which he has not yet mastered so as to put new remedies into the hands of the clinician. Some of this work not yet translated into practical therapy has already taken on importance in the diagnostic clinic. A good illustration is the Aschheim-Zondek test, which serves also to illustrate the earlier comment that almost anything is possible. Most of us would have been quite incredulous if told a few years back that, in the event of pregnancy in a woman there would arise in the pituitary gland (or in the chorion) processes which so affect the urine that, when injected into a female rabbit, the animal's uterine appendages would undergo changes so as to indicate pregnancy in the woman. Intricate as it is, it has come to be a routine diagnostic procedure.

The second and third divisions in the present status of endocrinology may be called, respectively, the field of experimental therapy and the field of established therapy. By the term "experimental therapy," I mean the trial of certain surgical procedures and the administration of certain organic products not yet of proven value, methods of treatment to which Novak suggestively refers as sufficiently logical to permit their being carried out "with no loss of dignity or self-respect." This is an essential step, the traversing of the borderland between laboratory and common practice, in the development of any therapy. But the very brilliance of success achieved in endocrine therapy demands that experimentation be kept under scientific restraint. The physiologist in his laboratory may pursue as ardently as he pleases whatever line of investigation may appeal to his imagination. The clinician distinctly may not. If and when he embarks on untried or inconclusively tried therapy, he must frankly admit at least to himself the nature of his undertaking. In this guarded attitude, a few favorably placed clinicians, without injustice to the patient may succeed in learning something and contributing to the knowledge of others. Needless to say, the near-charlantry of polyglandular therapy does not come within the scope of such legitimate clinical investigation. I was impressed by Dr. Lehman's conservative attitude toward thyroid surgery for heart disease, and it seems to me that such conservatism is for the present eminently right. On the other hand, it is stimulating to think of what parathyroid surgery may do for some of those people who manufacture urinary calculi perennially.

In the field of surgery the results of thyroidectomy for hyperthyroidism and of parathyroidectomy in osteitis fibrosa cystica are, of course, among the most brilliant of modern therapeutic achievements.

Turning briefly to forms of established organotherapy, the striking characteristic of what has been accomplished, whether in medicine, gynecology or surgery, is specificity. The effect of a given organic preparation may be multiple. For example, adrenalin raises blood pressure and relieves bronchial spasm; extract of posterior lobe of the pituitary gland (pituitrin) raises blood pressure and is oxytocic. Though the effect is multiple, it is in each respect clear-cut and definite. Indeed, if a gland begins to appear to have many and diverse physiological actions, then the investigators begin to attribute to it many and diverse hormones and set about separating them. The anterior pituitary illustrates this well. From this attitude of the physiologists the clinician does well to take the cue that if he is to prescribe intelligently the use of organic preparations, it must be with a definite effect in view.

Another important feature of organotherapy is the fact that with a few striking exceptions, oral administration is valueless. Practically, the exception is the thyroid. The estrogenic principle represented by theelol is perhaps another, but it appears that there is a better chance of success in ovarian substitution therapy with parenteral use of the principle as represented by theelin. As far as I know, the adrenal cortex hormone is not available commercially, though its efficacy administered by mouth in Addison's disease seems to be well established. The necessity for parenteral use of important hormones is illustrated by adrenalin, insulin in diabetes and parathyroid in tetany.

It would be a provocative thing if in this casual list I should claim to have mentioned all the established items of organotherapy. It would be more discreet to admit that they represent the limits of my acquaintance. The principle represented by antuitrin-S obtained from the urine of pregnant animals appears to be useful in at least some cases of uterine bleeding. The reason, of course, that the whole subject of gynecologic organotherapy lags behind that of gynecologic endocrinology is the complexity of the underlying pathology. It is one of the most promising fields for further investigation both in the laboratory and in the clinic. Dr. Andrews and Dr. Alexander have well expressed the promise and the pitfalls of organotherapy.

I want to congratulate the Society and the speakers on a most interesting symposium dealing with a rapidly developing subject.

DR. ANDREWS, closing discussion: Dr. Smith has called attention to the important fact that this subject needs to be under continued scientific study and surveillance. We recognize the danger of using inert products in some cases and possibly in others actually producing harmful results.

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CAUTION IN THE USE OF PROTAMINE INSULIN.

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Richmond, Va.

Protamine insulin is now on sale at drug stores, and probably many diabetics will be treated with it shortly. The early reports were so enthusiastic that the impression has arisen that harmful effects such as severe hypoglycemic reactions are extremely improbable. The gradual descent of the blood sugar level brought about by this insulin of slow and prolonged action supposedly makes unlikely the development of clinical reactions or at least gives such timely warning that severe reactions do not occur. Such has not been true in my experience of the use of this insulin in the past year. So far I have treated only seventeen patients with it, but some of these patients have used this insulin for practically the full year. Unconsciousness has occurred in six cases, and in three instances the duration of the reaction was far longer after the initiation of treatment for the hypoglycemia than is usually true with regular insulin. Although carelessness in carrying out the treatment advised led to these severe reactions in four of these patients, the errors were glaring in only two instances and in four of the six cases mild reactions occurred at similar times even when directions were followed. These hypoglycemic reactions have been troublesome almost entirely in the cases being tried on a single daily injection of protamine insulin alone. In these cases the injection was made prior to breakfast and the reaction occurred between midnight and breakfast, most often just prior to the time of injection of insulin. Enough protamine insulin to take care of the three meals is usually too much for the fasting period during the night. For this reason I have prescribed a bedtime lunch and the taking of the breakfast fruit as soon as the patient awakes in the morning. In other cases this has been insufficient, and reduction of the amount of protamine insulin was necessary. To compensate for this the injection of a few units of regular insulin just prior to breakfast was made.

Local reactions with redness, swelling, pain and tenderness at the site of injection have occurred in several cases, in one of which the family discontinued the use of the new insulin because of these reactions. Several months later resumption of this insulin in the latter case led to similar reactions which ceased after a month of continuous use. In a second case local reactions began, or at least became really troublesome, some months after the initiation of treatment. A third case has had local reactions with prolonged induration but little or no discomfort after every injection of regular insulin for the preceding nine years and after the protamine insulin for the past six months.

Another disturbing feature of the treatment with protamine insulin is a result of its prolonged action. Occasionally a patient will be unable to take food, due to nausea, vomiting or unconsciousness occurring shortly after the injection of the new insulin designed for utilization of the food intake of the entire day. It then becomes necessary to supply food repeatedly throughout the day and night by artificial routes such as by stomach tube or the intravenous needle.

The following case presents the unusual picture of hypoglycemia giving rise to some other condition, possibly cerebral edema, which caused prolonged mental aberration lasting two days. The general appearance of the patient and the irregular respiration combined with the other findings to form a most alarming picture which persuaded me that protamine insulin used improperly can be really injurious.

CASE REPORT

Case No. 54, a girl of eleven years, with diabetes of nearly five years' duration, had been treated with fifty-eight units of regular insulin in four doses daily. In spite of a dose of thirteen units at one A. M., her fasting blood sugar six hours later varied from 205 to 370 mg. For this reason treatment with three injections of regular insulin before meals and a ten P. M. dose of protamine insulin was begun. One night the mother was not at home and the grandmother gave the injection of protamine insulin at nine P. M. Being unable to see the fine lines on the U-40 scale, she measured out the same number of lines on the U-20 scale. In other words she doubled the dose of insulin. At about three A. M. the patient was found unconscious and delirious and thrashing around in bed. The family attempted to

give orange juice, but clenched teeth and vomiting nullified the effects of their treatment. About four hours after the onset of symptoms I saw the patient who presented the picture of a typical insulin reaction such as she had had on other occasions and which had been relieved fairly promptly with glucose by vein. Without taking a blood sample I gave her 16 cc. of 50 per cent glucose. She then improved enough to drink orange juice and to lie quietly in bed. Three hours later I was called back to see the patient because she had vomited the orange juice. had not eaten breakfast, and all the symptoms of severe hypoglycemia had returned. I then gave 30 cc. of 50 per cent glucose by vein and the juice of three oranges by mouth, again with only partial improvement. Following this, glycosuria occurred but unconsciousness persisted. Within the next two hours acetone appeared in the urine and fifteen units of regular insulin was given. In spite of this insulin, glycosuria and acetonuria increased and the blood sugar was found to be 160 mg. three hours after the insulin. Aside from the mental state, the shrieking, and the intermittent involuntary contractions of various groups of muscles, nothing abnormal was found on physical examination. Fifteen hours after the onset of symptoms the patient began to ask for water, but she did this in a daze and seemed unaware of her surroundings. Involuntary urination occurred frequently. She was kept on a liquid diet with frequent injections of small doses of insulin, and the following day the ketonuria disappeared and the blood sugar was again 160 mg. Spinal puncture showed normal pressure, dynamics and other findings save for ten lymphocytes. Stupor and delirium continued throughout the second day, but the morning of the third day fifty-two hours after the onset of symptoms, she awoke with a clear mind and no recollection of the events of the preceding two days. No further untoward symptoms or signs were noted and recovery was prompt and complete.

SUMMARY

The employment of protamine insulin with or without zinc has been followed in a number of cases with local and general reactions which are at times severe. One case with a very severe hypoglycemic reaction is reported.

CONCLUSIONS

Protamine insulin seems of marked benefit as a supplement to regular insulin in many cases and occasionally gives striking results in entirely replacing the regular insulin. It is undoubtedly of value in cases needing midnight doses of regular insulin to lower the fasting blood sugar. Its use should be restricted to cases in which close observation and careful management are employed and certainly at first to patients who will follow carefully all details of the treatment prescribed, since it does give rise to unpleasant and at times alarming reactions. Indiscriminate use should be avoided because of its powerful and prolonged action.

Medical Arts Building.

DR. HUNTER HOLMES McGUIRE, Surgeon, Teacher, Author, and Man.*

MARSHALL J. PAYNE, M. D., F. A. C. S.,
Staunton, Va.

One hundred years ago today, Dr. Hunter Holmes McGuire was born. On that day, a great epoch in history was wrought—for Dr. McGuire made history. Dr. McGuire's part in the making of history was not limited to any narrow restricted sphere. The records of his deeds reveal that he was engaged in notable affairs and important events in the profession of medicine and surgery. We find also that he employed even greater efforts in the civil affairs of his native state, and was awarded an enviable and unchallenged place of distinction by the people of Virginia for his service in times of war and of peace, in testimony of which this silent statue is immutable evidence.

Historical personages in all ages have controlled the interests and shaped the happiness of mankind. The earthly destiny of the human race has been

*Address broadcast at the foot of the monument of Dr. Hunter Holmes McGuire in the Capitol grounds, Richmond, Virginia, under the auspices of the Medical College of Virginia, on the one-hundredth anniversary of his birth, October 11, 1935.

largely directed and influenced by the makers of history. Men come and act a part on the world stage and go on, and history is made for either peril or success. During the hundred years just past, the world's history has been literally rewritten. This is true especially of the history of medicine and surgery. Dr. McGuire acted well his part in the making of the history of medicine and surgery.

Dr. McGuire lived, so to speak, in two ages of surgery and medicine—in the transition period, that is, during the period when the modern theory of the cause of disease processes was being evolved and established. He was one of the foremost men to adopt and put into practice the outstanding advances in the healing art. His influence as a leader was established in both ages of the practice of medicine and surgery.

No one can be unappreciative of the signal honor paid to him by invitation to have a part in connection with the ceremony at the hundredth anniversary of the birth of Dr. Hunter McGuire. I am not unmindful of my inability in the use of words and expression of speech to fittingly portray to you in part something of the influence of the worthy deeds, accomplishments, and conduct in the life of this distinguished man. The mind leads on and the will reaches out for strength and hope for the fulfillment of the task, for never before in my life has thought been more worthily engaged. The life of Dr. Hunter McGuire challenges and inspires in the minds of thinking men noble efforts, and quickens the desire for higher achievements.

I am familiar with the greater part of his printed secular and medical contributions. I have heard him dramatically and forcibly describe some important phenomena. I have witnessed his matchless operative skill. I have learned of incidences in his practice of medicine and surgery from laymen and physicians. I have been told by his grateful patients of his sympathy in their suffering and his eager ready wish to relieve their ills. I heard one patient tell of how Dr. McGuire removed his urinary bladder, washed it in a pan, and returned it to its place, and he was cured. I have listened to his assistant tell of the pride of doing menial things, ordered by Dr. McGuire, in order that he might sit at his feet and learn of him. I recall the first time I ever heard of an appendectomy being done, and that by Dr. McGuire. The patient in this operation was an intimate personal friend and classmate, a fellow medical student. I was told only a few days ago by a then youth how the neighboring boys climbed trees hoping to get a glimpse of Dr. McGuire the surgeon. I have been impressed with the active part taken by him in the public life of our Commonwealth—"As bold in Virtue's cause he spoke." All of these intimate personal impressions irresistibly compel me to speak of the influence of Dr. Hunter McGuire as surgeon, teacher, author, and man.

As surgeon, not only in the South, but in the world, Dr. McGuire ranked as a pioneer. Though compelled to rely on the complaint and history of the patient's illness as given by the family or the patient, yet, by thoroughly alert and sensitively trained special senses developed to the highest possible degree, Dr. McGuire almost unerringly confirmed or disproved the patient's statement and reached a correct diagnosis.

One of the most outstanding and lasting impressions in my mind of Dr. McGuire was his superb description of "facial expressions," originally used by him as a diagnostic means in acute traumatic or pathological conditions of the abdominal cavity. He seemed able almost intuitively to make a correct diagnosis and to correct errors in diagnosis. We must bear in mind that he was not aided by modern extensive laboratory findings of the blood, the urine, of tissues, and of secretions of the body, nor was it ever possible for him to have the aid of the X-rays. The X-rays had not then been evolved. We may well understand, then, the fitness of his mind for close and accurate observation and for the logical conclusions characteristic not only of his methods of diagnosis, but shown in every act of his life.

His surgical work and operative procedures were done without the present-day modern equipment and facilities. He did not have the advantages of the pressure steam sterilizers for dressings and instruments, nor did he have the modern retractors, conveniently adapted clamps, perfect needles, or needle holders, aseptic absorbable sutures or rubber gloves. It may be said that the equipment for hospitals and surgeons was almost totally lacking in convenience and efficiency. Surgical history tells that the nature and extent and technique of all radical operative procedures have been extended and refined by the experiences of individual surgeons. During the life of Dr. McGuire, the thoughts of the operator and the technique of operative procedures were prac-

tically original, and in many cases extemporaneous with the exception perhaps of operations for amputations and ligations of arteries. Therefore operative technique at that time varied with each surgeon. It was under these trying and difficult surroundings that the master mind, the steady and deft hand combined to sublimely fit Dr. Hunter McGuire for leadership in surgery and bring to him outstanding success in his life's work.

"Ligation of the abdominal aorta for inguinal aneurism, was first performed by Sir Astley Cooper in 1817 and has been since repeated by McGuire of Richmond, Virginia." (See *Quart. Journal of Medicine and Science,* August, 1869, page 5.) "In the case of Dr. McGuire it was intended to tie the common iliac, but the aneurism was found to involve the aorta and burst during the examination." (*American Journal of Medical Sciences,* October, 1868, page 415.) The above references may be conveniently found in the Principles and Practice of Surgery, by John Ashhurst, Jr., M. D., published in 1882, by Henry C. Lea's Son & Company, Philadelphia, pages 573 and 574.

"Hunter McGuire, one of the most distinguished teachers of surgeons in the South, was Stonewall Jackson's surgeon. He was the first to tie the aorta after Sir Astley Cooper, 1868." From William D. Haggard, Nashville, Tenn., Address of the Retiring President, The Background of the American Surgeon, page 166, American College of Surgeons, twenty-two year book, 1935.

These references prove that Dr. McGuire was the second surgeon in the world to tie the abdominal aorta. The bursting aneurism during the examination added an emergency at which even the boldest operators of this day, surrounded with the most extensive equipment and help, would quake with fear. This illustration serves to impress us with the daring courage and skill of Dr. McGuire. Sir Frederick Treves well said that "A shaking hand is embarrassing to the surgeon, and a shaking brain is fatal to the patient." Neither hand nor brain were ever so affected in Dr. McGuire.

Dr. McGuire, through his written and printed publications and contributions to the standard surgical works, was noted both in America and in foreign countries. He was recognized, therefore, as one fitted to speak authoritatively on things pertaining to surgical practice.

As a teacher, his ability, learning, and skill "was published in the mouths of his students," and this continues true even to this day. While teaching at the Medical College of Virginia in his early life and just after the Civil War, he would gather together the students of his classes and trudge three times each week to the Chimborazo Hospital, where in its wards he taught at the bedside, showing and emphasizing the then methods of diagnosis and operative procedures. The special privilege of conducting his classes in the Chimborazo Hospital was given to Dr. McGuire by the staff of the hospital, all United States officers and doctors, in recognition of the ability of the teacher and the man. This pioneer work in teaching medicine and surgery was perhaps the first attempt at what is properly called the bedside case method of instruction. The method employed by Dr. McGuire in that time is still in practice today.

Time permits me to make but brief reference to Dr. McGuire as an author. All of his writings, in substance of thought and expression, showed great strength of meaning. The typical characteristics shown by internal evidence in the writings of Dr. McGuire are very similar to those seen in the language of General George Washington. Both General Washington and Dr. McGuire had the power of thought and of expression of a master mind. Dr. McGuire's oration on General Stonewall Jackson shows that these men, companions in war and devoted friends, were alike—humble in spirit and great in action.

A study of the intimate acts of Dr. McGuire in connection with some important events in the history of our State reveals his controlling and beneficent influence. In the affairs of our State as related to our national government, Dr. McGuire was an ardent supporter of "states' rights." Therefore he fearlessly identified himself with those who held that the states were sovereign. The sovereignty of the states is the one fundamental principle of our national government. We of the older—and I think saner—order of thinkers admit and recognize the sovereignty of the United States government as foremost, yet we hold that the sovereignty of the United States government depends solely and entirely on the sovereign states bound together to form the United States. Without the sovereign states we cannot have nor can a sovereign United States exist. Dr. McGuire and men of his time familiar with the principles of government, the needs of our sovereign

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states, the needs of the sovereign United States and its people, would not consent to abandonment of the established principles of law, order, and government of the sovereign states. And thus the inalienable rights of the sovereign state and its people were preserved and the perpetuation of the sovereign United States government made possible.

The influence made by Dr. McGuire on the mind of even the casual observer lived on, never to be effaced. His personality and strength of mind revealed the bigness of the man. His bigness impressed me—everyone. He was a big doctor-surgeon, and yet had he been a lawyer, a preacher, or an artisan, he would have dignified his calling and made it a success. His servants, pupils, associates, and friends saw the bigness of his mind and character and the bigness of his service to humanity, and proclaimed him a man among men. Dr. McGuire loved his country and he loved its people. He loved to serve humanity and to make over frail bodies into health. He loved to counsel physicians; to bring light that they might see and understand. He loved liberty; he loved the right; he loved truth. He loved the healing art, for he "gave to men the key to unlock the golden gates of the citadel of magnificent scientific modern surgery." Then, turning aside, on account of ill health, he let fall his mantle, so worthily worn, on the shoulders of his distinguished son, Dr. Stuart McGuire, and "entered into that house not made with hands—eternal in the heavens."

TAPEWORM INFESTATION SUCCESSFULLY TREATED BY INSTILLATION OF MEDICINE THROUGH A DUODENAL TUBE.

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Infestation by taenia saginata or taenia solium—commonly called tapeworms—is frequently encountered in this part of the country. If the infestation is prolonged there is every likelihood of the development of serious consequences. Victims become anemic, debilitated and neurotic. They often give a history of frequent unsuccessful treatments by oral medication which is distasteful, nauseating and toxic.

This case is reported because it demonstrates the ease with which a tapeworm can be passed from a patient who had just about given up trying to get relief. The method is not new, for in 1924 Schneider,[1] in 1931 Gunn,[2] and in 1935 Golob,[3] reported the successful use of the method.

CASE REPORT

Mrs. M. W., age seventeen, married, white, complained of being fainty and of having abdominal discomfort. Her family history was essentially negative, with no infestation in any other member.

Past Medical History: Patient can recall no illness whatever in the past. The first medicine she ever took was for a tapeworm which she diagnosed by seeing sections of segments in her stool. This happened about two years ago when she also noted that she was fainty at times with discomfort in the upper abdomen. There was a tickling sensation in her throat which was relieved by a drink of water. For the past year she has had a poor appetite for ordinary food but has craved candy. For some time she has been very unstable emotionally, cries at the least provocation and sleeps poorly; however, she does not tire easily and has lost little weight. There is marked constipation and she has taken Epsom salts every other day for three months. She has taken all sorts of vermifuge recommended by friends, e. g., slippery elm, pumpkin seed, etc., with no relief. In October, 1935, she took a course of medicine prescribed by a physician, with no relief, and in March, 1936, was hospitalized for one week and given treatment by mouth with no relief. Two weeks before admission she took another course prescribed by a physician with no beneficial results.

Physical Examination: Shows a fairly well-nourished young adult female, nervous and apprehensive but not ill appearing. True acne vulgaris. Slightly palpable smooth uniform enlargement of thyroid. Slight tenderness and rigidity in right upper quadrant of abdomen. Fine tremor of hands and exaggerated reflexes.

Laboratory Findings: Urine: negative. *Blood:* r.b.c. 4,120,000; w.b.c. 9,400; hb. 75 per cent; lymphocytes 28; large mononuclears 4; neutrophiles 66. *Stool:* showed few segments of taenia saginata.

Notes on Treatment: For two days prior to treatment the patient took only liquids, on the day before treatment a dose of castor oil, and on morning of treatment, an enema.

8:30 A. M. A duodenal tube was passed, comparatively easily. After entering the stomach the patient was told to lie on her right side where she was allowed to rest quietly.

12:00 Noon. Bile-tinged fluid was recovered from the tube, which was alkaline in reaction. The patient was instructed to drink one-half glass of milk, which was not recovered through the duodenal tube; it was then concluded that the tube was in the duodenum. Whereupon two ounces of the following mixture was instilled through the tube:

Oleoresin Aspidium (Male Fern), 2 drams.

Mucilage of Acacia, 1½ ounces.

Saturated Solution of Magnesium Sulphate, 1 ounce.

Water, 2 ounces.

1:00 P. M. The patient vomited the tube and a small amount of bile-tinged fluid which did not have the odor of male fern, presumably retaining the mixture in the duodenum.

3:30 P. M. Vomited a large amount of clear fluid which did not have the odor of male fern. The patient states that at no time has she noted the unpleasant taste of the mixture.

3:45 P. M. There was a large liquid defecation with many segments.

4:00 P. M. and *4:30 P. M.* Small liquid defecations.

All feces were put into one container and then strained through gauze. Many segments and the head, detached from the body, were found.

The patient was then allowed to get up. She stated she had no untoward toxic symptoms and that she felt quite all right.

COMMENT

The method of procedure to rid a patient of tapeworm, as described above, is apparently more successful and less apt to produce toxic symptoms than the method of medication by mouth. The dosage is less and the medicine is instilled directly to the point where the head is most likely to be found. Needless to say, the method would fail in those cases where the tapeworm head is in the stomach, but I believe that the head is only rarely found in the stomach. This procedure can be carried out in the home. The principal advantage of hospitalization is the assistance given by the laboratory in discovering the head.

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PNEUMONIA OVER A PERIOD OF TWENTY-FIVE YEARS.*

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No apology is offered nor I hope expected for basing this review of pneumonia upon the experience of twenty-five years at the Johnston Memorial Hospital and Clinic at Abingdon. This Society is composed nearly entirely of physicians in general practice. By force of circumstances, both you and we of the Clinic are deprived of opportunities for technical research and experimentation, and even access to large libraries. Hence, we could not, if we would, draw upon such sources of information. We have at our disposal, however, the lessons of personal experience in the homes and home hospitals of our own people. If we could utilize the sum total of these bedside experiences as intensively and judicially as those more comfortably placed use theirs, I believe we could draw as much practical aid from the daily work of the country doctor as from the wards of the large hospitals.

The Johnston Memorial Hospital is one of several hospitals serving the essentially rural and small-town communities of the Holston and Clinch Valleys of Southwestern Virginia, with thin slices of

*Read before the Wise County Medical Society, Norton, Va., February 18, 1937.

adjoining states. Most of these people are native to these mountains and valleys, and by heredity and constitution are fundamentally healthy, with less of vicious habits and diseases engendered thereby than other more sophisticated communities. I wonder whether this fact explains some of the surprising statements about to be made?

Beginning March 1, 1911, through December 31, 1936, with one year counted out for war service, the Johnston Memorial Hospital has records of 30,772 patients. Of this total, 510 have been diagnosed Pneumonia. This is an incidence of 1.6 per cent. We do not make a habit of recording strictly "terminal" pneumonias, where other factors are obviously of primary importance, and pneumonia simply the gateway out. Nor, except as a complication of operations, traumatic injuries, and the like, do we record so-called "hypostatic" pneumonias, such as those so frequently completing the picture of congestive heart failure. It is not easy to differentiate such "pneumonias" from the expected edema and congestion of the failing heart. We would have more pneumonia to report, and, doubtless, a higher mortality rate, had we included such cases. This much admitted, we feel justified in the omission since we cannot expect to treat such cases successfully except as we can control the primary and causative factors.

Upon breaking down and analyzing these 510 cases of pneumonia, some interesting facts come out:

Between 1911 and the summer of 1918, the records show an incidence of 1.1 per cent of lobar pneumonia, and 0.26 per cent of broncho-pneumonia—lobar pneumonia more than four times as frequent as broncho-pneumonia. Between the summer of 1919 and December 31, 1936, the incidence of lobar pneumonia was 0.4 per cent, of broncho-pneumonia 1.3 per cent—almost a complete reversal of the relative frequency of the two types.

Our records have accurate data as to the outcome of the illness only of those patients admitted to the hospital. Of the admitted cases in the pre-war period, lobar pneumonia had a mortality of 7 per cent; broncho-pneumonia, no mortality among the very few cases admitted. In the post-war period, lobar pneumonia had a mortality of 13 per cent; broncho-pneumonia, 21 per cent.

I emphasize by repetition this reversal of the ratio between the two types of pneumonia. In the first series, lobar pneumonia is to broncho-pneumonia as four is to one; whereas, in the second series, lobar pneumonia is to broncho-pneumonia as one is to three and one-half.

I feel confident that there is something of significance in these figures, and that if we can find the explanation, there may be something of practical value, at least toward defining our problem.

I find that the greatest difficulty I have when discussing pneumonia with others is to get an agreement upon definitions. So, it is pertinent to ask now as a preliminary to any discussion: Just what is the difference, or what are the distinguishing differences, between lobar and broncho-pneumonia? Classically, the differentiation is clear. Lobar pneumonia attacks the individual out of a clear sky, abruptly, with an initial chill; prompt and sharp rise of fever; grunting respiration, rusty sputum, and a sharp leucocytosis; there is complete consolidation of one or more lobes, the remainder of the lungs being clear; and a sharp crisis usually five to nine days after the onset, with prompt convalescence unless complications exist or develop. Broncho-pneumonia, on the contrary, almost invariably slithers into the picture of an ordinary bronchitis, especially that at the extremes of life, or the bronchitis of influenza, measles, etc., or that of one already knocked out by injury, operation or debauchery; without chill, rusty sputum, or definite leucocytosis; with patchy involvement of the lung, or lungs, and with so much associated edema and congestion, often, as to render uncertain the exact location or extent of the consolidation; no crisis, but with a notorious tendency to spread or metastasize to new areas of the lungs.

Undoubtedly, there are still such clear-cut cases

	1911-1918 *3,402 registrations* *Admitted: 17*			*1919-1936* *27,370 registrations* *Admitted: 339*		
	Outpatients	*Survived*	*Died*	*Outpatients*	*Survived*	*Died*
Lobar Pneumonia	26	13	1	39	67	9
Broncho-pneumonia	6	3	0	140	216	47
	32	16	1	179	283	56

of each of the two types of pneumonia. There are others, many others, in which there is no such classical distinction. For instance, we meet with cases of slow, poorly marked onset following a cough, signs of bronchitis only for a day or more, no leucocytosis, perhaps an actual leucopenia, and yet a sharp crisis, and prompt recovery. And I find a constant tendency of those I work with to compromise with one or more of what we used to regard as essential signs, and call the case lobar pneumonia if there is *lobar distribution* of the signs, and broncho-pneumonia when the signs are not so clear cut, or so sharply limited.

Nor does it require more than a cursory review of some of the case records to lend some degree of support to this practical solution of the dilemma of differential diagnosis. We could cite cases which in the aggregate seem to break all rules of differentiation.

As the result of such not exceptional experiences, there seems to be developing with us a sort of tacit understanding that, after all, it does not make a great deal of difference whether we assign the individual case to the lobar or bronchial group of pneumonias. This attitude may explain the relative increase of broncho-pneumonia in our series. If that is the explanation, then it must be, with us at least, that there is an increased number and proportion of pneumonias which never go on to complete or lobar consolidation.

There is, also, not only a commensurate increase of the death rate, but a disproportionate increase in the total pneumonia deaths,—an increase of from 6 per cent before the war to 16-2/3 per cent since the war.

In other words, whether or not we have been aware of it, we have been assigning to the group, Lobar Pneumonia, those with the closest approach to the classical description, those with the sharp reaction to the pneumonic infection, and these have the better prognosis, as the astute clinicians of an older day knew full well. Contrariwise, we have developed the habit of calling broncho-pneumonia those of insidious onset, indefinite consolidation in the midst of universally "wet" lung fields, and these cases have a less favorable chance.

This trend toward calling the more cases, *and the more fatal cases,* broncho-pneumonia began in 1920, and, with marked variations up and down in succeeding years, has continued until now.

Instantly, the mind reverts to the epidemics of influenza pneumonia of 1918 and 1920. This hospital was closed in 1918, but in the epidemic of 1920 we repeated the experiences of the army base hospitals of 1918. We lost approximately 40 per cent of our cases of influenzal pneumonia in the winter of 1920, and ever since, the closer the approach to that picture of "hemorrhagic pneumonitis" so familiar in those years, the nearer we approximate the mortality rate of those years. At autopsy upon those cases the lungs looked as if the patient had drowned in blood, and upon squeezing the lungs dry of blood, there was sometimes no gross consolidation anywhere.

Fortunately, we have been spared for the most part such typical "drowning" cases, but every now and then we run into a small series of cases with all the earmarks of that fatal type of 1918 and 1920. We call these broncho-pneumonia of the influenzal type. We should have called them something else, probably hemorrhagic pneumonitis.

But by far the larger number of cases since 1920 resemble the influenzal cases only insofar as the pneumonic involvement is patchy (though later there may be spreading or confluence of this area or those areas), and the rest of the lungs is more or less wet. Often it is impossible to be positive just where the pneumonia is. The closer the case approaches the influenzal, the more apt there is to be leucopenia rather than leucocytosis, though there have been many exceptions to the rule. Even in the same epidemic identical looking cases may show wide variations in their blood counts. At least, this is the sort of pneumonia we have been calling bronchial.

I have just mentioned leucopenia and leucocytosis as if they were of differential significance. We used to be told that pneumococcic infection anywhere is associated with the highest leucocytosis of any infection; that the pneumococcus causes lobar pneumonia; that lobar pneumonia and pneumococcic pneumonia are practically interchangeable terms. On the other hand, we were told that practically any organism other than the pneumococcus causes broncho-pneumonia. If so, the epidemics of 1918 and 1920 were exceptions to the rule, and there have been exceptions ever since. The pneumococcus was demonstrated present, even typed, in most of our army cases, and a striking leucopenia was almost invariable. Yet this was not lobar pneumonia.

Before that epidemic was over, however, we had

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learned that there was a mixed bacterial flora in all of these influenzal cases. Though the pneumococcus might be present, the prognosis did not depend upon the presence nor the abundance of this organism, but did vary directly with the abundance of other bacteria, and most definitely and positively with the prominence of the streptococcus in the bacterial population.

I regret that I cannot submit data to prove my belief that it is the same factor, namely, streptococcus dominance, plus one other factor, that is responsible ever since for the greater proportion of broncho-pneumonia, and the higher death rate. The other factor is the largely forgotten or overlooked fact that pneumonia is frequently a bacteriemia or septicemia, as well as a pulmonary disease. Study of any large series of cases from hospitals with adequate laboratory facilities proves that, other factors being equal, the mortality of pneumonia varies directly with the frequency of bacteriemia.

Upon the appreciation of these two facts, namely, the prominent role of the streptococcus in the pneumonias, as well as in all infections since the World War, and the actuality and the relative frequency of blood-stream invasion, depend the chances for improving the present mortality rate of the disease.

There is no excuse today, as there was until just recently, for failing to type the pneumococcus of the sputum. It can be done now, if sputum be available, in any laboratory and within a few minutes.*

We have been tardy in adopting routine typing of the pneumococcus for the double reason that through a period of twenty-five years our mortality in lobar pneumonia has been about 11 per cent as low as is claimed for most serum-treated cases; second, because the majority of our patients have been of the influenzal type, and, even though the pneumococcus be present, we have felt that it was not the lethal agent. In the very few instances in which we have typed the organism, the pneumococcus has been Type III or IV. In the equally rare case in which we have used Felton's serum without typing the sputum, the outcome has been discouraging.

This limited experience must be expanded before we are permitted a personal opinion. Speaking, however, in part from personal experience, and, where that is limited, from the experience of others, I plan to approach each case of pneumonia in the future with the thought that this may be a case for one of the specific sera or antibody concentrates. If this specific treatment is to be given a fair trial, it should be used in adequate dosage at the earliest practicable moment. Delay seems to be as unwarranted here as it is in diphtheria. If the picture as a whole seems to be that of the lobar type, especially if there is a definite leucocytosis, I shall have the sputum typed as soon as possible, and a blood culture set up when it is possible. If either Type I or Type II pneumococcus predominates over other organisms which may be present, and if by this time the patient seems more than moderately ill, and especially if the blood culture be positive, I expect to use the specific anti-serum. If, on the other hand, the features are those of influenzal, or broncho-pneumonia, with wet lungs, if there be no leucocytic response, and if on studying the sputum the field is overlaid with all sorts of organisms, especially the streptococcus, I think the use of pneumococcal anti-sera is unwarranted, even though the pneumococcus be also present. Perhaps the time will come, may we hope shortly, when a reliable mixed anti-serum can be developed, efficient in the treatment of all types of pneumococcal infection, and the streptococcal, influenzal, and other infections as well.

Meanwhile, with pneumonia as with most acute diseases there are cases which are doomed to die no matter what we do; others which will recover in spite of meddlesome treatment, or worse; leaving a middle stratum where the issue may hang on the intelligence of treatment, and, just as important, nursing.

We have been using the oxygen tent for a year

*To Type the Pneumococcus (Sabin Technic): Equipment: Microscope, three hollow-ground slides, three cover slips, Loeffler's alkaline methylene blue, platinum loop, three bottles antipneumococcus serum (rabbit), one each Types I, II, III.

With platinum loop, place fleck of sputum on each cover slip. Sterilize loop, and place one drop undiluted Serum I on cover slip I, and mix with sputum. Sterilize loop each time, and repeat process with slips II and III with Types II and III serum. Add methylene blue stain to each. Hollow glass slides, numbered I, II, III, their edges smeared lightly with petrolatum, are covered with the inverted cover slips, so that the mixture on each is a hanging drop. Stand two minutes, and examine with high magnification, or, preferably, oil immersion lens.

Usually, the capsule of the pneumococcus is invisible in hanging drop preparations. But prepared as above, the pneumococcus mixed with its corresponding serum is surrounded by a "swollen" capsule, called "quellung" (Neufeld), *but only when mixed with rabbit serum of the corresponding type.* The swollen zone around the organism is highly refractile, like ground glass. The capsule does not take the stain. If, therefore, this "swelling" appears on slides I, II or III, the pneumococcus is of the corresponding type. If no capsular swelling appears on any slide, then the pneumococcus (if present) belongs to Type IV.

or more when the patient shows definite cyanosis. We see no indication for its use in the absence of cyanosis; that is, when the blood is already sufficiently oxygenated. We have been disappointed when using oxygen at least as often as we have been gratified. When all of the lungs are flooded with mucus or blood, oxygen, even when supplied artificially and in high concentration, cannot get to the blood in the alveolar capillaries. Wide open windows and the vasomotor stimulation of cold, fresh air seem in danger of being forgotten for the more spectacular use of the same oxygen from a metal cylinder.

In this sort of case we still use digitalis, though we concur in the dictum that so-called "heart failure" in pneumonia is usually not failure either of the right or the left side of the heart, but, rather, vasomotor failure and venous engorgement. We still have a lurking feeling that increased myocardial tone may aid the mass movement of blood through these engorged capillaries and veins. Besides, we have not noticed any harmful effects, and we have not found anything better.

Reasoning by analogy to the brain case, we have hoped that hypertonic glucose solutions might relieve the pulmonary edema, though the hope has not always been realized.

Diathermy and artificial pneumothorax, though available, have not been used at this clinic. Perhaps, there is a place for them in very painful pleurisy.

Finally, in certain patients the most satisfactory drugs in my hands have been fractional doses of morphine and good whiskey. In part, these two act synergistically, namely, in nervous sedation, in relieving pain, and consequently in creating a corresponding sense of comfort and well being. Codeine and other substitutes do not do the same thing, though they may relieve the cough. The doses are just sufficient to promote comfort and to quiet restlessness, trying to avoid doses that will benumb the respiratory center. Used in this way, nothing seems to "stimulate" the patient so surely, to hold or to restore his morale by removing those factors which tend to break it down, fortifying him by sleep, against the hour when Nature comes to his rescue by producing his own antibodies.

George Ben Johnston Memorial Hospital and Clinic.

IMPORTANT POINTS IN THE TREATMENT OF PNEUMONIA WITH SPECIFIC SERUM.*†

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With the separation of all the pneumococci into distinct types, and the development of antisera for the types most frequently causing pneumonia, there has come a rapidly-increasing interest in the treatment of pneumonia with specific serum. The use of this therapeutic tool is attended with marked success, but, like any tool, it must be thoroughly understood and properly handled.

Accordingly, I shall try to give, in the present paper, a practical answer to several of the questions most frequently asked regarding the serum treatment of pneumonia. First, however, let us review the steps to be followed in the treatment of a case of pneumonia with serum. These are portrayed graphically in Chart I.

On the left-hand side of the chart is listed the information which must be obtained from the patient. The first item is, of course, a history and physical examination. When these lead to the slightest suspicion of pneumonia, the sputum should be examined for pneumococci. If any pneumococci are found belonging to the types for which serum is available (Types I, II, V, VII, and VIII), treatment with serum should be instituted as soon as possible unless contraindicated by hypersensitiveness of the patient to horse serum.

The chief aids in determining the amount of serum to be used are leucocyte counts, blood cultures, careful observation of the clinical course of the dis-

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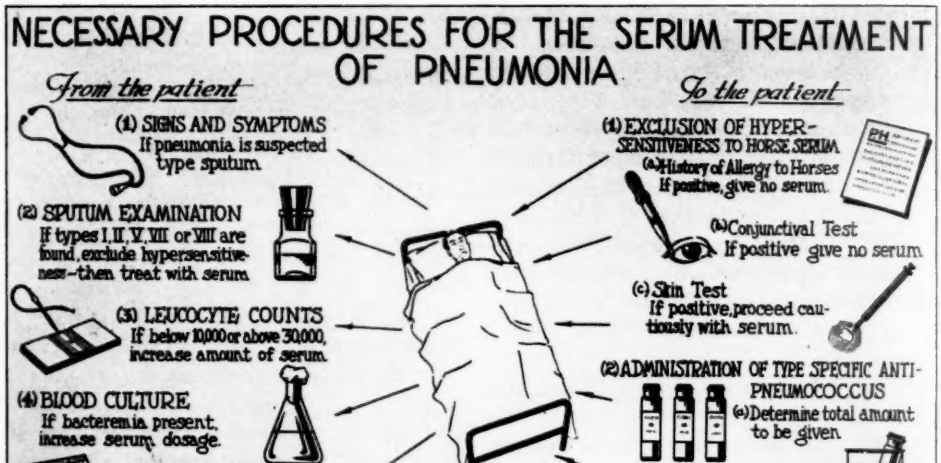
NECESSARY PROCEDURES FOR THE SERUM TREATMENT OF PNEUMONIA
From the patient
(1) SIGNS AND SYMPTOMS
If pneumonia is suspected type sputum.
(2) SPUTUM EXAMINATION
If types I, II, V, VII or VIII are found, exclude hypersensitiveness—then treat with serum.
(3) LEUCOCYTE COUNTS
If below 10,000 or above 30,000, increase amount of serum.
(4) BLOOD CULTURE
If bacteremia present, increase serum dosage.
(5) CLINICAL COURSE OF THE DISEASE
If severe, increase serum dosage
(6) X-RAY EXAMINATIONS (if necessary)
If large area involved increase serum dosage.
To the patient
(1) EXCLUSION OF HYPERSENSITIVENESS TO HORSE SERUM
(a) History of Allergy to Horses
If positive, give no serum.
(b) Conjunctival Test
If positive give no serum.
(c) Skin Test
If positive, proceed cautiously with serum.
(2) ADMINISTRATION OF TYPE SPECIFIC ANTI-PNEUMOCOCCUS
(a) Determine total amount to be given.
(b) Warm to body temperature
(c) Inject first dose of 5cc. slowly by vein.
(d) Remainder (if <25cc) injected 2 hrs. later.
(e) Further doses determined by clinical course.

Chart 1. Important points in the treatment of pneumonia with serum (Dowling).

ease, and, if desired, X-ray examinations of the chest. Leucocyte counts should be made at frequent intervals. Blood cultures should be taken before serum is administered, and repeated frequently if positive, or if the disease is severe.

horses or after the administration of horse serum, and by conjunctival and skin tests with a 1:10 dilution of horse serum. If there is a history of allergy to horses, or if there is a positive conjunctival test, as evidenced by redness and itching, serum should

TABLE 1—SUGGESTIONS FOR MINIMUM DOSAGES OF SERUM IN THE TREATMENT OF PNEUMOCOCCUS PNEUMONIAS

DAY OF DISEASE	TYPE OF PNEUMOCOCCUS		POSITIVE BLOOD CULTURE	MARKED TOXICITY, GRAVE COMPLICATIONS OR INVOLVEMENT OF A LARGE AREA OF THE LUNGS
	I, V, VII or VIII	II		
1st	60,000 U.	100,000 U.	x 2	Increase dosage as conditions warrant
2nd	80,000 U.	120,000 U.	x 2	" " " " "
3rd	100,000 U.	140,000 U.	x 2	" " " " "
4th	120,000 U.	160,000 U.	x 2 or 3	" " " " "
5th or later	150,000 U. or more	200,000 U. or more	x 2 or 3	" " " " "

On the right-hand side of Chart I are shown the measures applied to the patient. Before serum can be used, the presence of hypersensitiveness to horses must be excluded, by inquiring for symptoms of hay fever, asthma or urticaria on contact with

not be given. Where a positive skin test occurs in the absence of the other two factors, we sometimes proceed cautiously with the administration of serum.

When hypersensitiveness has been excluded, the amount of serum to be given should be determined.

The factors which help the clinician in making this decision will be considered later in this paper. The serum should be warmed to body temperature and the first dose of 5 cubic centimeters administered intravenously at the rate of 1 cubic centimeter per minute. After two hours the remainder of the serum may be administered, although it is best to divide the serum into two doses, if it is more than 25 or 30 cubic centimeters.

With this routine approach to each individual case in mind, we can now consider the specific questions which are likely to arise. One question very frequently asked is, "When shall I give serum?" To this there is only one answer, "As soon as possible." This necessitates the early diagnosis and typing of all pneumonias. When a patient complains of a chill or pain in the chest or both, pneumonia should be suspected. When these symptoms are accompanied by cough with the expectoration of blood-tinged sputum, the patient almost surely has pneumonia. Although the typical signs of consolidation are rarely present at the onset, there may be detected in many cases a slight suppression of breath sounds and slight dullness over the area involved. A roentgenogram often helps, if facilities for taking it are available without too much disturbance to the patient. At any rate, if there are frank signs, or if there is only a suspicion, of pneumonia, the sputum should be typed immediately. This may be done in thirty minutes by the Neufeld capsular-swelling method.[1] Negative or questionable results by this method should be followed up by the routine mouse method. If the sputum is found to contain pneumococci of one of the types for which serum is available (Types I, II, V, VII, and VIII), the chances are about 99 out of 100 that the patient has pneumonia, even in the absence of definite physical signs, since these pneumococcus types are rarely found in the throats of normal persons. On the other hand, out of 100 cases of pneumonia typed in the Central Laboratory of the George Washington University Hospital, approximately 60 per cent were found to have been caused by the types of pneumococci for which serum is available.

Sometimes the physician does not call for a sputum typing because the symptoms and signs do not indicate a typical lobar pneumonia. While it is true that pneumonias caused by Type I and Type II pneumococci usually exhibit a typical sudden onset with chill or chest pain or both and are almost always lobar in distribution, nevertheless pneumonias caused by the other types for which serum is now available (Types V, VII and VIII) show the typical symptoms and signs less often, and are composed of a larger percentage of bronchopneumonias. Pneumonias caused by any of these organisms, regardless of their symptomatology and lung distribution, are equally amenable to serum therapy. The physician should not hesitate, therefore, to have the sputum typed even if the pneumonia in question does not appear from the history or from the physical signs to be "typical" lobar pneumonia.

When the attending physician receives the report that one of the foregoing types was present in the sputum, he should begin treatment immediately. Bullowa and Mayer[2] have shown that the mortality for cases of pneumonia treated with serum increased progressively with the day treatment was begun. None of their patients died when treatment was started on the first day of the disease, only 5.7 per cent died when treatment was instituted on the second day, and with each succeeding day of delay the percentage of mortality increased progressively until it reached 27.4 per cent among the patients who did not receive serum until the seventh day of the disease. Or, to put it another way, out of every 100 patients with pneumonia, approximately four lives were lost for each day of delay in instituting serum treatment. These figures show conclusively that early diagnosis, immediate type determination, and prompt treatment with serum in pneumonia are life-saving measures.

"How much serum should I give?" is the next question. There is no simple answer because there is no way of stating *a priori* exactly how much will be needed in any individual case. In this respect, the treatment is similar to the treatment of diabetic coma—one can never tell at the outset how much insulin will be needed to bring the patient out of the attack. Fortunately, however, in both instances, there are many helpful guides to the proper treatment.

As will be seen from Table 1, the chief factors to be considered in determining the dosage of antibody are: the day of the disease in which treatment with serum is begun, the type of pneumococcus causing the disease, the presence or absence of the organisms in the blood stream, and the presence of marked toxicity or of major complications. The table is not intended rigidly to prescribe a fixed amount of serum

for every contingency, but rather to demonstrate the various factors which affect dosage and to indicate the minimum dosage which can be used with benefit in the majority of cases.

Types I, VII and VIII pneumococcus pneumonias are fairly amenable to serum treatment, and are therefore given the lowest dosage. Type V pneumonia is tentatively placed in the same category, although it is a severer disease than the others mentioned. Finland and I[3] found that the mortality among 140 untreated Type V pneumonias was 50 per cent, approaching closely the 51 per cent mortality found in untreated Type II pneumonias.

In addition to causing this high mortality, pneumonias produced by the Type II pneumococcus are more refractory to serum treatment than are those caused by the other types treated with serum. Consequently, the amounts of serum recommended are considerably higher than for the other types.

If blood cultures reveal the presence of pneumococci, the total dosage of serum should be double or triple the amount which would otherwise be given. If this fails to clear the blood stream, still more serum is needed. Bacteremia is one of the most fatal complications of the disease. Approximately 80 per cent of patients exhibiting organisms in the blood stream die, unless they receive the benefit of serum. Finland and I[4] have shown that in cases of Type II bacteremia, 300,000 to 500,000 units are needed to obtain recovery.

There are other conditions which demand an increase in the dosage of serum. Especially is this true if the patient is markedly toxic or prostrated. In this respect, the physician must depend upon his clinical acumen in judging the seriousness of each case and consequently the amount of serum to administer. Delirium, high pulse-rate, undue cyanosis, and a large area of lung consolidation are other contingencies which usually require a larger dose of serum. The same is true of the grave complications—heart failure, delirium tremens and the like.

The response desired from the administration of serum is a drop in temperature within eight to twelve hours, followed by a drop in the pulse and respiratory rates, and an evident lessening of the toxicity. If these do not occur, the clinician must review the factors involved, with a view to giving more serum. If the temperature and pulse rate drop and remain down, and the general condition of the patient improves, more serum is usually not necessary, although the patient must be carefully watched as long as there is any fever, and as long as there are any abnormal signs in the chest.

The third question which I shall attempt to answer is, "What is the effect of serum treatment on the area of consolidation?" In adequate doses, specific serum clears the blood stream, lessens the toxicity, and hinders the development of complications. Furthermore, there is rarely any extension of the lung involvement to a new lobe after the administration of serum. Sutliff and Finland[5] found that extension occurred in none of their twenty-eight cases of treated Type I pneumonia, and in only one of their forty-six cases of treated Type II pneumonia.[6]

In the area already affected, resolution is undoubtedly hastened if the patient is treated early—before complete consolidation has taken place. If the consolidation has progressed to the stage of hepatization, resolution will probably not be any more rapid after the administration of serum than if none had been given, since the subsidence of the lesion depends, at this stage, upon the natural reparative processes of the body.

SUMMARY AND CONCLUSIONS

1. In the treatment of pneumonias with serum it is important: (a) to diagnose the condition and type the causative agent as soon as possible, and (b) to decide upon the proper dosage of serum for the individual patient and begin its administration early.

2. Suggestions have been given for the determination of the proper dosage of serum in the individual case.

3. The effect of the specific serum therapy upon the lung lesion has been discussed.

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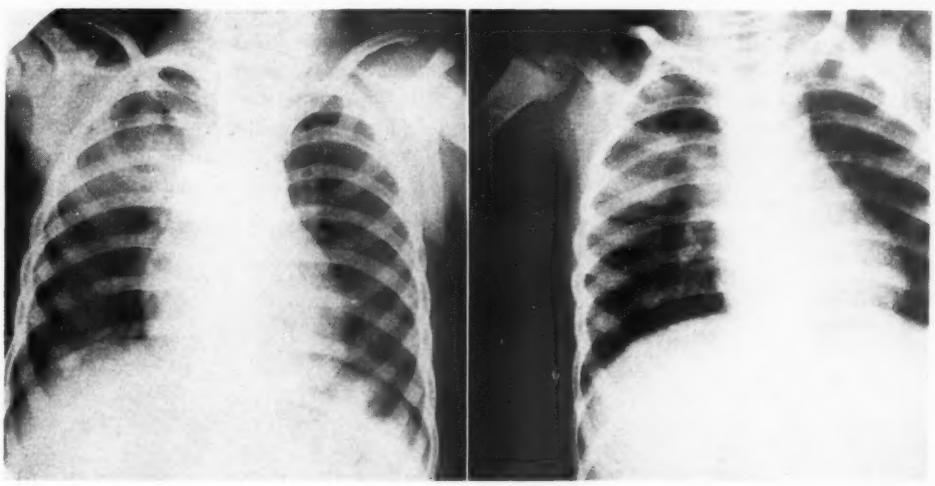
PNEUMONIA IN INFANTS AND CHILDREN.*

SAMUEL NEWMAN, M. D.,
Danville, Va.

What can be compressed within the period of twenty minutes on "Pneumonia in Infants and Children" will be presented in a few statements and lantern slides gleaned from my own experience.

1. Pneumonia in infants may not be accompanied by a single cough or stethoscopic finding.

E. A. B. (Figures 1 and 2), age twenty-six months, was seen on an afternoon. He started with vomiting and fever in the morning. His temperature was 104.2. He showed a slightly reddened throat, normal ear drums, and had no cough. Physical signs in the chest were negative. The following day, vomiting ceased; temperature was 104; no cough and no physical signs in the chest. On the morning of the third day, his temperature was 103; no definite physical signs. Radiograph of the chest showed considerable infiltration in the upper part of the right lung—lobar pneumonia. A radiograph taken three days later still showed considerable infiltration in the upper part of the right lung.



Figs. 1 and 2.—Case E. A. B.

2. Lobar pneumonia in children may give a typical syndrome of appendicitis.

J. J. (Figure 3), seven and one-half years old, presented vomiting, high temperature, and localized pain and tenderness over the appendix region. Physical signs in the chest were negative; cough absent. The rather high temperature and a high white cell count made the diagnosis of appendicitis dubious. Not until two days after the initial examination, and twelve hours before a radiograph was taken, could respiratory changes be detected in the chest. Two days after the radiograph was taken, temperature came down to normal.

3. Extensive pneumonia may occur without elevation of temperature.

H. G. S. (Figure 4), ten and one-half months old, showed symptoms of severe illness—anorexia,

*Read before the Virginia Pediatric Society in Richmond, May 29, 1936.

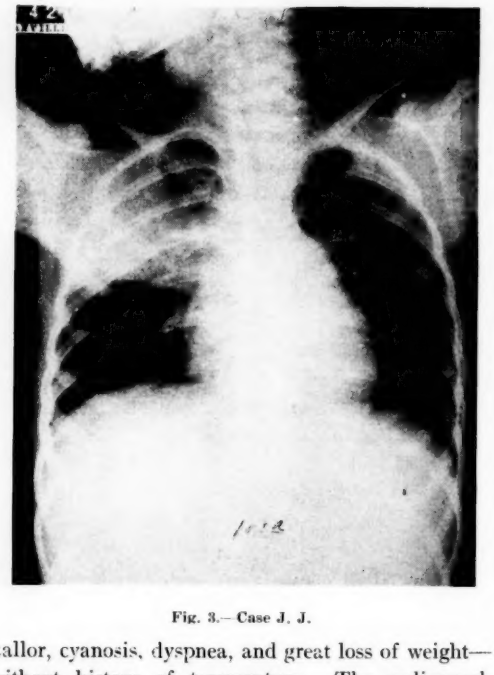


Fig. 3.—Case J. J.

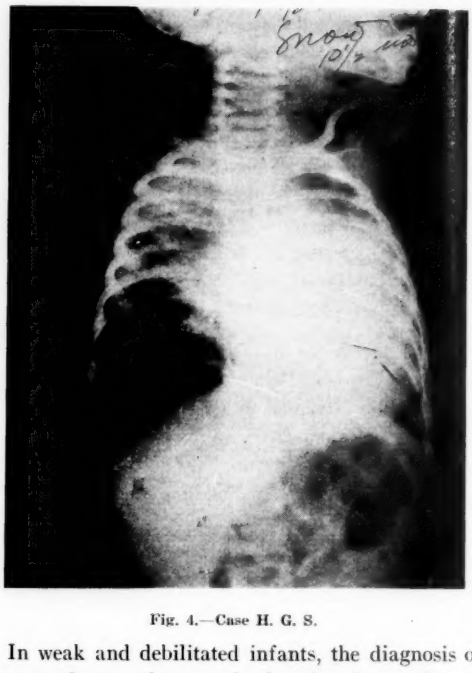
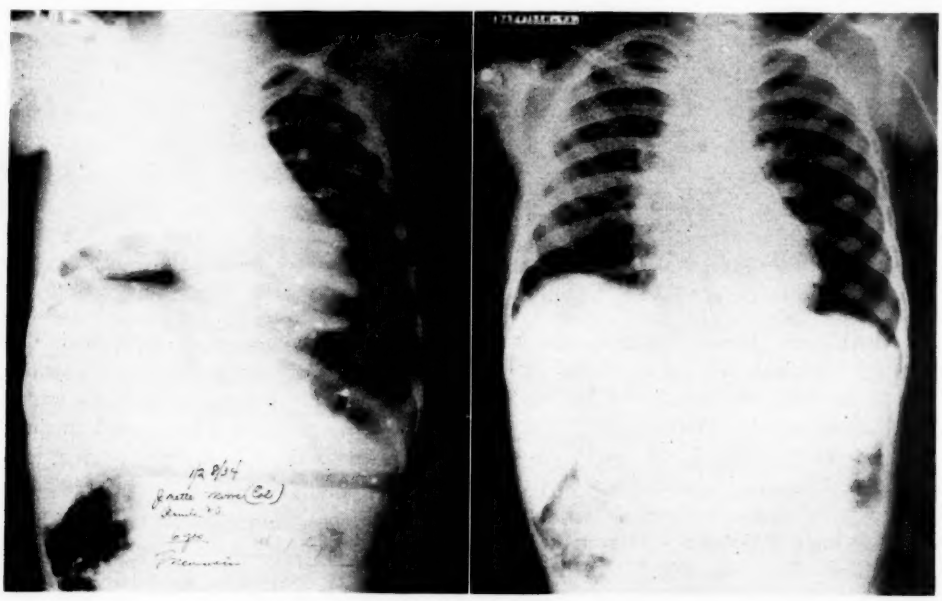


Fig. 4.—Case H. G. S.

pallor, cyanosis, dyspnea, and great loss of weight—without history of temperature. The radiograph showed extensive involvement of the right lung. The enlargement of the heart was not due to position; on careful fluoroscopic examination, the seeming enlargement was real.

In weak and debilitated infants, the diagnosis of pneumonia may have to be based only on the so-called Finkelstein triad—dyspnea, pallor, and cyanosis. The absence of percussible and auscultatory findings may be due, according to Finkelstein, either to a dry swelling of the mucosa in the bronchial



Figs. 5 and 6.—Case J. M.

tree, or to its obliteration by very thick secretions. The absence of temperature in these infants, he attributes to the tendency to collapse, which may mask the fever.

4. Extensive pneumonic involvement may resolve very quickly. Resolution may coincide with the subsidence of the clinical symptoms.

J. M. (Figures 5 and 6), six years old, gave a history of anorexia, fever, cough, nose bleed, and abdominal pains, commencing eight days prior to first examination. Radiograph showed pneumonic involvement of practically the whole right lung. Three days later, the temperature came down to normal. Six days later, the child *walked* into the office. A radiograph showed practically complete resolution of the extensive pneumonic involvement.

5. Resolution of pneumonia may not coincide with the subsidence of clinical symptoms. Involvement of new lung areas may take place even after the subsidence of clinical findings.

S. J. (Figures 7 and 8), three years and eight months old, was ill a few days with fever and vomiting; no cough, and no physical findings in the chest. Radiograph of the chest showed pneumonic involvement of the middle lobe of the right side. Two days later, clinical symptoms disappeared. A second radiograph, taken five days after the first, showed considerable pneumonic involvement of all the lobes of the right lung.

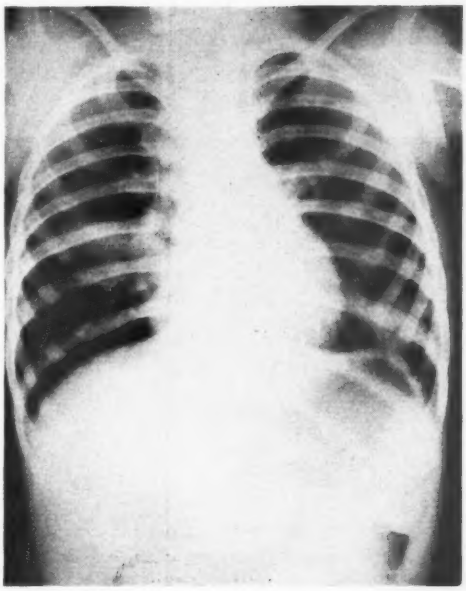
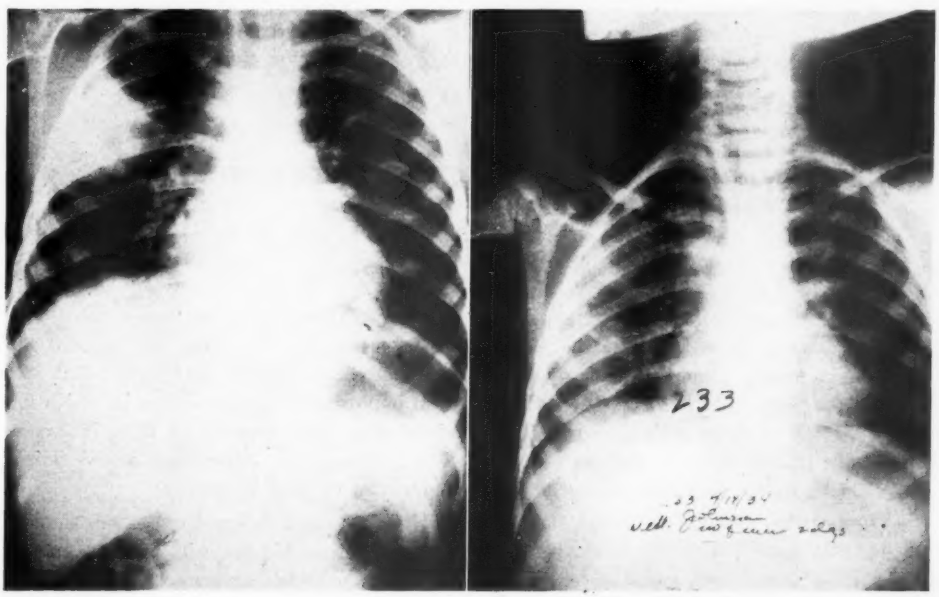


Fig. 9.—Case J. W.

Many such cases were studied roentgenologically. The explanation of this phenomenon, I do not know.

6. An acute illness of only one day's duration in



Figs. 7 and 8.—Case S. J.

a young child, diagnosed as grippe or influenza, may really be lobar pneumonia.

J. W. (Figure 9), nineteen months old, an only child, presented temperature of 102.6; mild injection

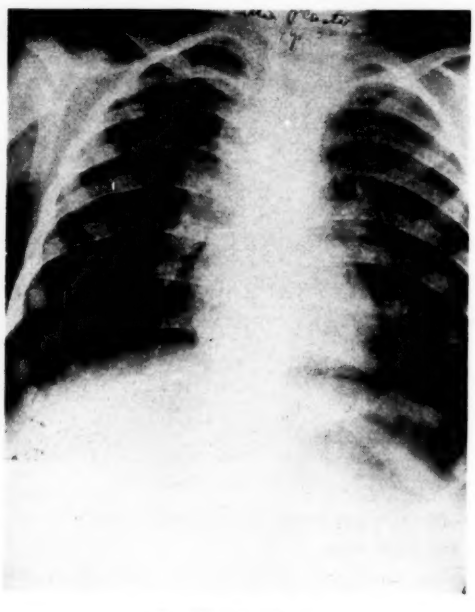


Fig. 10.—Case B. P.

of the pharynx; slight cough, and negative chest findings. The following day, the child was well. The only previous ailment was an attack of asthma without temperature at the age of nine months, which disappeared. At the age of twenty-one months, two months after the supposed attack of grippe, a radiograph of the chest showed clearly the outline or residue of a pneumonic involvement of the middle lobe; right lung. It is reasonable to assume that the pneumonic involvement dated back from the supposed attack of grippe two months previous to the date of taking of the radiograph.

7. A radiograph of the chest, without any signs or symptoms pointing to the chest, may reveal unexpected findings.

B. P. (Figure 10), age four years and three months, gave a history of fever and vomiting starting six days previous to examination. The vomiting persisted about two days. At the time of examination, he complained of headache, pointing to the frontal region of the skull. No convulsions. The physical findings were: Temperature 104; slightly positive Kernig's sign; no hyperesthesia; no rigidity of the neck; normal pupillary reactions, and injected throat. Physical findings in the chest, negative. During the examination, the child was given two ice cream cones, which he ate with great relish. Radiographic examination showed a typical picture of miliary tuberculosis. Spinal fluid examination revealed the early findings of tuberculous meningitis (positive globulin reaction and slight increase in the cell count). Eight days later, the child died. Animal inoculation confirmed the diagnosis of tuberculous meningitis. The diagnosis of tuberculous meningitis was arrived at by way of the roentgenological examination of the chest.

Arcade Building.

PNEUMONIA—ESPECIALLY EIGHTY DIATHERMED CASES.*

J. O. FITZGERALD, JR., A. B., M. D., F. A. C. P. T.,
Richmond, Va.

In May, 1936, pneumonia led the Virginia death rate. This is a month in which we do not expect much pneumonia in this climate. This condition and cancer vie for second place in the United States death rate. In 1930, there were about 100,000 deaths from this disease in the United States.

Pneumonia is a term, which, like many medical words, is from Greek. But in this case no effort was made to build a more expressive term,—we simply transplanted the whole Greek word. A definition is not only interesting, but necessary in considering many medical conditions. But it would seem impossible to choose a term in which the definition was more superfluous than in pneumonia. Every medical man immediately knows it is an inflammation of lung tissue.

There are many different types and classifications of this disease, but we will mention only a few. According to onset, we may have primary or secondary, asphyxiation or post-operative; as to the

*Read before the sixty-seventh annual meeting of the Medical Society of Virginia, at Staunton, Va., October 13-15, 1936.

part of the lung involved it may be broncho, lobar, interstitial; in the various areas affected it may be apical, central, basal, etc. Named from its causative germ it may be pneumococcus, streptococcus, influenza, septic, etc. Thus we may multiply classifications, but they all carry the same general meaning of inflamed lung tissue.

Probably the diagnosis can only be made absolute at post-mortem. But there are numerous clinical manifestations which, when grouped and considered, make a practical, dependable working diagnosis.

The lobar type has a rather sudden onset; a previously healthy person is stricken with a chill, pain in the chest, bloody foamy expectoration, fever, prostration, air hunger, dyspnea, hyperpnea, cough, rapid pulse, cyanosis, etc.

Laboratory studies may show a markedly increased total leukocyte count and a definite elevation of the percentage of neutrophiles. Blood culture helps when it shows the infecting organism. Sputum examination and identification of the kind and type of bacteria present may assist. Diminished urinary chlorides was long considered suggestive. X-ray studies are frequently of great value. Recently Dr. C. H. Smith has reviewed a large number of cases in which one of his conclusions was that the laboratory, while dependable when positive, was, because of certain physical difficulties, not absolute. Clinical study of the patient often reveals an area of pleurisy, rales and moisture in the lung, and auscultation and percussion show consolidation.

In broncho-pneumonia the onset is not always so characteristic. The patient here, in many instances, is a previously depleted, physically below par, often very young or old person.

In broncho-pneumonia blood examinations offer less diagnostic service. X-ray plates may assist by revealing the pathology.

But we must rely largely upon the combination of history, symptoms and physical examination. As said before, the appearance of a group of these symptoms has made and will continue to make the working diagnosis, while the exact and scientifically absolute diagnosis will continue a post-mortem finding.

The progress of the disease, too, varies with broncho or lobar pneumonia. In the lobar type following the onset mentioned above, there is a maintained fever, increased prostration, cyanosis and circulatory embarrassment generally persist, while air hunger becomes more definite. These symptoms constitute a picture of varying anxiety through a somewhat indefinite period (though often the time is six to nine days) until termination is reached either by crisis or death.

In the bronchial type the course is very indefinite as to onset, severity of prostration, fever, and cyanosis. Duration may extend from a few days to weeks or even months. To those working with pneumonia patients (and all of us do) mortality rate is of especial interest, for it is only by this that we may guess whether we are saving some lives or only making our patients more comfortable. Undoubtedly the rate varies with climatic and economic surroundings. Bullowa, after studying a group of juveniles, gives the average death rate for pnemococcus pneumonias as 15.4 per cent, non-pneumococcus types as 18.9 per cent, while the broncho rate was 29.6 per cent. Rinker, in a recent issue of the VIRGINIA MEDICAL MONTHLY, gives the average rate at 25 per cent to 35 per cent. This seems fair and in keeping with figures studied elsewhere. The various types give different mortalities, as do various epidemics,—e. g., type III is estimated at 60 per cent to 80 per cent. As nearly as we could estimate, the 1936 rate ran a mortality of about 40 per cent.

The treatment of pneumonia is in no way stereotyped, and different men and clinical groups have their pet ideas.

At present lung collapse is one of the newer suggestions holding a certain amount of the spotlight.

Serum is available for only two of the now recognized thirty-two types of pneumococcus infection, and, of course, there is no serum for the varieties of other organisms causing lung inflammations. Recently (*Journal Clinical Medicine and Surgery*, May, 1936) Cole estimates in type I pneumonia mortality has not been reduced below 4.5 per cent in cases where serum is used in the first forty-eight hours.

In recent years we have been interested in diathermy (either conventional or short wave) for treating lung inflammations. It has not been used as a treatment *per se*, but as something that in no way interferes with any other indicated treatment, and as something that I feel has been the most valuable single agent in treating these sufferers. In our cases, if oxygen was indicated it was used; and the same thing pertained to serum, etc.

Stewart first reported using diathermy in 1921.

XUM

not as a cure of pneumonia, but to relieve the suffering and distress accompanying it. The treatment consists in passing a high frequency current through the chest, with resulting arterial and capillary hyperemia, such as would result in any locally heated area.

TABLE OF THE EFFECTS OF DIATHERMY

EFFECTS OF HEAT ON—

A. BODY TISSUES
- I. Dilatation of blood vessels
  - 1. Thinning vessel wall
  - 2. Increased permeability or penetrability
- II. Increased blood volume
  - 1. Cytologically
    - a. Red cells (increased oxygen)
    - b. White cells (increased phagocytes)
  - 2. Plasma
    - a. Nourishment
    - b. Ferments
    - c. Antibodies
- III. Increased metabolism
  - 1. Anabolism
  - 2. Katabolism
- IV. Increased tissue drainage
- V. Decrease of pain

B. BACTERIA
- I. Reduced reproduction and growth
- II. Reduced toxin production

A few general effects which occur almost constantly in pneumonia cases treated by diathermy are as follows: a distinct lessening of pain and a consequent deepening of breathing; where cyanosis exists the color improves, and many of these people will tell you voluntarily "I feel better." May I quote a nurse to her attending physician: "Doctor, if you had never had pneumonia and had diathermy for it you couldn't imagine the comfort it gave me." About ten minutes after initiation of diathermy a Russian woman was being observed by several internes. One said that she breathed easier and looked less cyanotic, when she volunteered: "And I feels better."

Sweating is often increased.

Increased fluid intake is fairly constant, but whether or not it is due to increased fluid loss I do not know. Perhaps both the sweating and increased intake are the results of increased body heat.

Immediately—that is, within the next two hours—there is increase in both pulse rate and temperature. These increases are small and are followed by a return to nearer normal than existed before treatment.

Expectoration is generally made easier. It becomes thinner and the amount is increased. A sound, restful sleep of one to three hours follows most administrations. Many observers feel that if diathermy did no more than increase comfort and bring about this sleep it would be worth while.

Diathermed pneumonias usually recover by lysis rather than by crisis. Psychologically, helping any patient restores confidence and gains valuable cooperation. But the reduction in mortality has occurred so often and with such regularity that it needs especial mention. Every writer on the subject stresses the importance of beginning diathermy early.

Stewart reports 947 cases begun on this treatment within forty-eight hours of onset with only eight deaths. In my own series twenty-two have begun in the first forty-eight hours, none of them have died, and all were free of fever within five days of beginning high frequency treatment.

I have now treated a total of eighty cases. Ten of these have died—a mortality rate of 12.5 per cent. May I mention that four of these deaths were in cases very ill before pneumonia developed. Two were post-operative patients with general peritonitis, one from a ruptured appendix, the other from a perforating duodenal ulcer. Neither lived twenty-four hours from the beginning of treatment. Another was a stomach cancer case who was thought to be almost well of pneumonia when he vomited a large amount of blood and died suddenly. A fourth was a seven-weeks-old infant who developed meningitis and died promptly. Without including these four deaths my mortality rate is 7.5 per cent.

Wetherbee reports a small number of cases treated by the best available methods but every other one was given diathermy in addition. His total mortality was 22 per cent though it was 11 per cent in the treated cases, as against 33 per cent in the untreated.

Stewart reports a table from the Employees' Hospital of Tennessee Coal, Iron and Railway Co.:

Diathermy treated cases, mortality 12.4 per cent.

Control cases not given diathermy, mortality 20.3 per cent.

United States Marine Hospital No. 21:

Diathermed cases (all types), mortality 19.4 per cent.

Cases not getting diathermy, mortality 42.9 per cent.

Stewart, with about 10,000 cases now, says that mortality in pneumonia, regardless of the type, can be reduced 70 per cent by properly applied diathermy.

May I quote from an editorial in the *Archives of Physical Therapy, X-ray and Radium*, of March, 1936? "When, however, one considers that diathermy has been utilized in the treatment of pneumonia by a number of careful and unprejudiced observers for more than a decade, then the element of chance cannot enter argument. To this must be added an appreciation of the scientific rationale of the action of diathermy. Without entering into a detailed discussion, one only needs to think of the greater defense of an infected organism produced by arterial hyperemia to appreciate the clinical importance of diathermatization of the congested lungs. Under such a concept it is clear that administrated at an early stage of pneumonia the clinical results would be proportionate to the technic brought into play. Diathermy has already changed the statistical mortality and morbidity rate, justifying a more optimistic concept of the course and sequelae of pneumonia."

We have in the not distant past lived through an age when diagnostic acumen so far surpassed our therapeutic ability that we approached a spirit of therapeutic nihilism. It was the various physical diagnostic aids which advanced diagnosis—the centrifuge, the microscope, the stethoscope, the electric light, the X-ray, etc. Today I am glad we are living in an age when our profession is reaching out and using these same physical forces as a bright and shining sun to dissipate this fog of therapeutic nihilism and thereby bring relief, restored health and prolonged life, while without these aids we seemed to have approached our therapeutic limit.

DISCUSSION

DR. B. M. ROSEBRO,* Richmond: As Dr. Fitzgerald has called to your attention, the diagnosis and treatment of pneumonia embraces the symptomatic and constitutional treatment of the patient as well as the specific treatment directed towards the lung infection itself.

Dr. Stewart has emphasized the extreme importance of beginning treatment within the first forty-eight hours of its onset. As Dr. Fitzgerald has stated, 900 cases were treated in the early stages with the death of only eight patients. This fact has assumed greater and greater importance in my mind as I have watched the results reported in literature and the outcome of those cases that have occurred in my private practice. My records show that, including two cases seen in consultation after almost a week of sickness, seventeen cases of pneumonia in infancy or early childhood, were treated with me by Dr. Fitzgerald. In nine of these cases we were able to make a satisfactory diagnosis within thirty-six hours of the onset. With the addition of electrical heat to my usual routine of treatment, which I had used before, complete recovery occurred in all nine cases by the fifth day. Not only was recovery complete, without complications, but I am very much interested in the quickness with which this recovery took place; the comfort under which these little patients recovered; the improvement in their ability to sleep; in the activity of the skin as shown by sweating; and the slowing of the heart rate. In the bronchial cases especially to be noted was the gradual lessening in the rapidity of pulse and blood pressure. One point may be of interest, to which I will call your attention: In the cases of lobar pneumonia in which crisis came at the end of four days, blood pressure fell rapidly, but in proportion to the fall of temperature, slowing of pulse rate, and respiratory frequency. Five cases in which treatment was delayed for one reason or another recovered. One infant, seven weeks old, died from a complicating pneumococcic meningitis.

I realize in this that I shall probably not secure your agreement that this outline of treatment should be tried early, and not late in the disease, after every other means has been used which is usual in these cases.

There is no pathognomonic symptom of pneumonia. Each symptom upon which we depend for diagnosis may present itself normally, or in individual cases may be almost entirely absent. The rapid respiration, grunting, cough, temperature, blood count, X-ray of chest, physical findings of a careful examination, all may present typical evidence, or be absent in the early stages. Therefore, we agree with the statement Dr. Fitzgerald has recently made that a post-mortem examination of the lung is the only absolute scientific proof of the presence of this disease.

Dr. Charles Smith, Professor of Pediatrics, Columbia University, before a recent meeting of the Richmond Academy of Medicine, discussed the pathology of pneumonia. He showed slides of quite a number of post-mortem examinations of the lungs, and sections of the lung by which he established that infants and young children have lobar pneumonia as well as bronchial. In *bronchial* pneumonia, Dr. Smith demonstrated by his specimens that the actual seat of the pneumonia was in the small bronchial tubes, the bronchioles, and the alveola. These tubes, he said, were full of mucus, polymorphonuclear cells, and bacteria, while the parenchyma or lung tissue was edematous and infiltrated with round cells; whereas, in *lobar* pneumonia, the parenchyma was the seat of the invasion of pneumococcus and infiltration of the polymorphonuclear cells.

*Dr. Rosebro died December 17, 1936.

XUM

The X-ray men of Richmond, especially Dr. Hodges, in their discussion of an early diagnosis by this method, feel that sufficient evidence should be gotten after the first twenty-four hours to justify a diagnosis.

Referring to Dr. Smith's paper again in this connection, he has suggested that an antero-posterior exposure or a lateral exposure may not definitely reveal the small area of pneumonia in the early stages because of frequency of this area being covered by the heart, thymic, or bone shadows. He has suggested an exposure half way between these. It seems, then, one might suppose that a very careful, painstaking physical examination, a blood count, or an X-ray, would give us sufficient impression on which to base our opinion.

Reasoning from this pathology, the line of treatment would suggest itself—

1. Drainage of the blocked lung of mucus. This can be accomplished in two general ways:

First, by assisting the flow of mucus into larger bronchioles, from which it can be coughed up. Percussion of the baby's chest with the baby lying on his face across a pillow with chest lower than abdomen helps. This also has a tendency to lessen the amount of atelectasis. Also if the patient is placed with abdomen across a pillow and chest and upper respiratory track below the level of the abdomen and on his face at stated intervals, a large amount of mucus can possibly be gotten rid of.

Second, the application of counter-irritants or heat is probably our best means of promoting hyperemia of the lung. The advantages of hyperemia are, of course, readily apparent. Increasing of the blood supply to any diseased area brings to the area fresh oxygen, antibodies, and leucocytes. The dilatation of veins increases the amount of drainage internally from that infected area, both of which are of great advantage.

Third, the production of the leucocytosis and specific antibodies opens to us the field of parenteral treatment of pneumonia serums, antigens, blood transfusions, etc., although there is some probability that absorption of the toxins and the detritus is accompanied by a general increase of leucocytosis and antibody generation throughout the body. Any means which would promote this accepted principle of treatment should at least receive serious consideration. Diathermy, theoretically, does this—that is, promotes drainage, increases hyperemia and leucocytic infiltration in the diseased area.

II. Promoting comfort of the patient. Rest, diaphoresis, lessening of the cough, which occurs in a vast majority of instances, is of no slight benefit. Dr. Stewart has emphasized this symptomatic result, and in the few cases we have treated his contentions seems to be borne out.

To make a brief summary of what I have said, in adding diathermy to your therapeutic methods, an early diagnosis is all important. As you are well aware, this is also important in serum treatment of pneumonia, or any other method to which you may be accustomed.

DR. T. DEWEY DAVIS, Richmond: Dr. Fitzgerald has given you an excellent mortality rate for his series of pneumonia cases treated with diathermy. Last spring I had occasion to review very thoroughly the literature on the treatment of pneumonia in connection with a talk before one of the local societies in the State. I also had the opportunity, just prior to this, to discuss the treatment of pneumonia with several prominent physicians (two of them happened to be past-presidents of the American College of Physicians) at a meeting in Detroit. I made a special point of getting their opinion on the use of diathermy in pneumonia. Not one of them was enthusiastic about its use. Certain experimental work would seem to show that diathermy does not increase the temperature within the lung structure.

It would seem that if the procedure is beneficial in pneumonia, reports of its use would appear in some of the national journals, such as the *Journal of the American Medical Association*, the *Archives of Internal Medicine*, or the *American Journal of the Medical Sciences*. I have not found such a reference. Dr. Stewart, as Dr. Fitzgerald has disclosed, has reported the largest series of cases treated with diathermy, but no article under his name appears in these journals.

I talked this morning with one of our members who recently had several weeks of observation in the leading teaching hospital in Boston, Mass. He told me that diathermy treatment in pneumonia had been tried and discontinued there.

Wetherbee and his co-workers in 1935 reported on the treatment of thirty-six patients with pneumonia; eighteen were given diathermy with a mortality of 11.1 per cent, the remainder the usual ward treatment, including serum, with a mortality of 33.3 per cent. Naturally, this series is too small for definite conclusions to be drawn.

Therefore, I ask you, gentlemen, before you go home and go to the not inconsiderable expense of installing a diathermy machine, and before you put your patients to the expense of taking this treatment, look further into the question of whether or not it is beneficial.

DR. FITZGERALD, closing the discussion: I feel as hungry as you folks must be, and that you are not in an attitude to listen to any closing discussion.

As to the figures that I presented, you can get quite a few figures from various dependable workers, and the quotations I presented for what they are worth. Personally, I feel that if I should have pneumonia I certainly want somebody who understands the technique to go into the proper treatment of my case with diathermy.

There are certain factors that enter into this lack of discussion. In one of the hospitals that I shall not mention, I approached the physical director about a year ago and recently the associate physical director. I said: "Doctor, what about your pneumonia diathermy?" He procrastinated, then finally said: "We have in our hospital a 250-volt direct current, so we are not doing anything with it. We are trying this year to buy a satisfactory converter, so that we can talk with the rest of you folks about it." I do not want to go into detail now, but I think we ought not to criticize something about which we know very little.

PNEUMONIA QUESTIONNAIRE

SENT TO ALL MEMBERS
OF THE
MEDICAL SOCIETY OF VIRGINIA

Total number answers 274

1. How many cases of pneumonia do you see annually in private practice?

   No. Lobar—2,013 or average per doctor about 10 cases.

   No. Broncho—2,305 or average per doctor about 11 cases.

2. What in your experience is the chief antecedent factor?

Colds and upper respiratory infections	92
Exposure	55
Not exposure	1
Influenza	44
Fatigue and lowered vitality	34
Neglect	21
Atmospheric conditions and poor ventilation	11
Alcoholism	8
Contagious and infectious diseases	8
Malnutrition and imprudent eating	7
Poor hygiene	5
Senility	5
Contact with other cases	4
Poverty	3
Previous infection	2
Post-operative	1

3. What proportion of pneumonia patients have had their sputum typed?

   128 or in about .03 per cent of cases.

4. What proportion have received specific serum therapy?

   135 or in about .03 per cent of cases.

5. Do you use oxygen?

   116 or 59 per cent—many qualifying statements by saying when in hospitals or in cyanosed cases.

6. Have you felt that inability of the patient to afford a nurse has been a handicap in any of your cases?

   Yes—151.

   No—22.

   Many reported all cases had nurses.

   What percentage?

100 per cent	9	40 per cent	2
95 per cent	4	35 per cent	1
90 per cent	8	30 per cent	2
80 per cent	5	25 per cent	12
75 per cent	9	20 per cent	3
70 per cent	1	15 per cent	1
60-2/3 per cent	6	10 per cent	15
60 per cent	2	5 per cent	6
50 per cent	41		

7. What in your opinion is the chief cause of our high pneumonia mortality?

Lowered resistance, malnutrition or exposure	31
Poor nursing	31
Virulence of infection	26
Lack of nursing and medical attention	24
A question	19
Delayed medical care	14
Living conditions	14
Over-treatment	13
Lack of facilities (oxygen, sera, etc.)	12
Over-stimulation and digitalis	11
Failure to use serum and oxygen early	11
Delayed diagnosis	10
High cost	9
Age	8
Alcoholism	7
Incompetency or lack of knowledge of physician	7
Carelessness as to upper respiratory infections	5
Moving when ill	5
Mixed infections prior to illness and complications	4
Lack of keeping quiet	4
Poor ventilation	4
Lack of health education	3
Lack of hospitalization	3
Seasonal conditions	3
Delay in hospitalization	2
Lack of cooperation of patient	2
Concurrent pathology	1
Improper treatment	1
Inattention on part of physician	1
Isolation of whooping cough and influenza	1
Lack of health examination	1

8. What measures would you suggest that would make typing, sera, and oxygen more easily available for your patients?

State and local boards of health to care for work	42
Reduction in cost	39
Local hospitals to care for work	13
Typing and service stations over state	13
Better laboratory service	12
Free to indigent	10
Educating physician	7
Hospitalization	7
Trained technician	6
Educating layman	3
Rural ownership of oxygen tents	3
Physicians to have typing and oxygen service	2

XUM

Central agency in each congressional district	1
Cooperation with Red Cross for oxygen	1
General hospital insurance	1
Instruction of hospital staff	1
Probably by State Medicine	1
Rural electrification	1

9. What other measures would you suggest that would be of value in lowering the mortality of pneumonia?

Educating layman as to proper precautions	37
Good nursing service	18
Early diagnosis and treatment	12
Stop over-treatment	9
Early care	6
Educating physicians	5
Hospital facilities	5
Put to bed early	5
Diathermy	4
Availability of typing and sera	3
Discontinue promiscuous use of heart stimulants	3
Early use of serum	3
Post-graduate course on pneumonia	3
Rest and no moving	3
Use of sero-bacterins and vaccines in early Fall	3
Early digitalization	2
Hospital insurance	2
Light diet	2
Oxygen early	2
Reduced prices for oxygen, sera, etc.	2
Typing sputum and sera routinely	2
Use of digitalis and supportive measures	2
Abolition of liquor	1
Accumulation of data	1
Adequate medical care	1
Avoidance of abdominal distention	1
Better training of medical student	1
County nursing service	1
Improved roads in rural sections	1
I. V. N. A. service where necessary	1
Lower fees for tonsillectomy	1
Nursing care at reasonable rate	1
Practical well-trained nurse	1
Raising resistance of patient and improving living conditions	1
Scientific methods of treatment	1
Supply physician with apparatus for indigent	1
Treat individual case	1

Abstracts

How Many Need Help?

Within a small margin of error, about 50 per cent of the population goes through the year without any illness. Fifty per cent of the illnesses of the other half are not disabling. One-half of the remainder, or about 12½ per cent, are of a minor character, such as the common cold, and involve a disability of less than a week. This leaves about 12½ per cent who have serious illness and an expense for wage loss and for medical care sufficient to constitute a real problem. Of these, many are able to meet the necessary expense from their own savings, by deferred payments or from regular income, just as they meet other extraordinary expenses. Thus it seems reasonable to assume that 5 per cent—certainly less than 10 per cent—of the total population are unable to meet their sickness expense without great sacrifice. This is still enough of a problem always deeply to concern organized medicine.

It is a testimony to the accuracy of these figures that when county medical societies have set up machinery to provide medical service for those otherwise unable to obtain it the number served has almost invariably been between 3 and 5 per cent of the total population.—*Jour. A. M. A.*, Feb. 20, 1937.

Treatment of Organic Arterial Obstruction by Alternating Suction and Pressure: Device to Relieve Incidental Arteriospasm

Edward Allen Edwards, Boston (*Journal A. M. A.*, Feb. 20, 1937), declares that in cases of both acute and chronic organic arterial obstruction there is apt to be an associated spasm of the collateral vessels. This spasm counteracts the effect of the suction-pressure therapy and is not relieved by the treatment. He describes a device that furnishes warmth to the affected extremity while it is treated by suction-pressure. Such locally applied warmth is capable of maximum vasodilatation and increases the effectiveness of the suction. Moreover, the local increase in metabolism caused by the raised temperature assists in the processes of healing.

Proceedings of the Council of the Medical Society of Virginia

The Council of the Medical Society of Virginia held its winter meeting at the Society's office in Richmond on February 2, 1937, at 2:00 P. M., with the president, Dr. J. Morrison Hutcheson of Richmond, presiding.

Besides Dr. Hutcheson, those present were: Dr. G. F. Simpson, president-elect; Drs. G. W. Holland, Julian L. Rawls, C. E. Martin, Beverley F. Eckles, John Hundley, Jr., C. O. Dearmont, J. E. Knight, and C. B. Bowyer, councilors; Drs. Jos. T. Buxton and Hugh H. Trout, vice-presidents; Dr. Wyndham B. Blanton, chairman of the Publication and Program Committee; and Miss Edwards, secretary. Dr. R. W. Miller, councilor of the Third District, was prevented by sickness from attending.

Dr. Hutcheson stated that respresentatives from the Cavalier Hotel at Virginia Beach and the Chamberlin Hotel at Old Point would like to renew their invitation for the Society to hold its 1937 meeting at those places, and, if no objection, he would have them come in at this time. Mr. Eaton and Mr. Waddill of the above named hotels then told of the rates and advantages offered by these two hotels.

Following this, minutes of the Council meeting held in Staunton at time of the 1936 meeting were read and approved. The question brought up at that time in regard to a more convenient hour for the Council meeting at the annual sessions of the Society was discussed. Upon motion of Dr. Rawls, it was decided to have the president set time for these meetings with a view to selecting an hour that would be convenient as possible for all members.

The next matter to have consideration was the selection of the place for the next annual meeting of the Society. Dr. Trout renewed the invitation which had been extended by the Roanoke Academy of Medicine last fall. After a discussion which brought out the fact of the accessibility of Roanoke to practically all parts of the State, it was moved by Dr. Martin and seconded by Dr. Eckles that the Society hold its meeting in Roanoke, which motion was unanimously carried.

The week beginning October 10th was tentatively selected as the time for the meeting, but, to avoid conflict with other meetings, this matter was left to the president.

Dr. Martin moved that letters of thanks be sent to the two hotels and the societies backing their invitations. Carried.

The executive secretary-treasurer presented a statement of the Society's finances for the first four months. Dr. Hutcheson announced that while this showed a good balance it should be borne in mind that it included collections for our best financial month.

Dr. Bowyer, in his report as councilor, said that the Clinch Valley Medical Society had developed into a splendid organization but that some of its members did not seem to see the necessity of membership in the Medical Society of Virginia, and he wondered what could be done to induce the members to take a greater interest in the State Society. After discussion of this matter, a motion was adopted that the president appoint a committee to make a study of the question of the interrelationship of membership in the local, state, and American Medical Association, this committee to make a report at the next meeting of the Council. In the meantime, the secretary was instructed to send each councilor a list of the doctors in his district now affiliated with the local societies but not in the State organization, to see if he might induce them to join the State Society.

Dr. Hundley said that he had no report to make, but that Dr. Plunkett is interested in having something specific for his Committee on Maternal Welfare to do and had asked him to find out about this. He also wished to know what relation existed between his committee and the work being done by the clinician with the Department of Clinical and Medical Education of the Society. Dr. Hutcheson said he appreciated Dr. Plunkett's feelings and explained that the Federal government turns over to the State Board of Health a sum to be expended for maternal and child welfare work and the State with this money pays the clinician whose work is arranged through the Department of Clinical and Medical Education. The function of the Maternal Welware Committee at this time seems to be largely of an advisory mature.

Being asked if he had anything he wished to say, Dr. W. B. Blanton, editor, said that he and his committee were anxious to improve the MONTHLY in every way possible and that they would appreciate any constructive critcism. It was felt that he was doing his work well and no suggestions were offered.

He wished to have the advice of the Council as to the programs for the annual meetings, especially in regard to having sectional meetings. There was a great deal of discussion pro and con the sectional meetings, but the consensus of opinion was that the arrangement of the program is a hard job and it was decided to leave this matter to the judgment of the Program Committee, which was in accord with the decision reached several years ago.

Dr. Blanton also said that the Committee to Study the Pneumonia Situation in Virginia, of which Dr. Hutcheson had appointed him chairman, was at present canvassing the situation with the hope of reducing the death rate of this disease in Virginia, and they hoped to present a worthwhile report later.

Dr. Simpson said he had heard the question raised if

the Department of Clinical and Medical Education is stressing clinics too much and wondered if it might be well to suggest that they assemble information on various subjects in readable form and publish such condensed findings in the journal. It was asked if it was his idea to have the Department publish such papers monthly or once a year, and Dr. Simpson replied this was offered only as a suggestion to be used as material developed. Dr. Trout felt that Dr. Blanton was already doing this in his editorials. Dr. Simpson said the idea was only to enlarge on the present plan.

The president read a letter from Dr. Thomas Parran, Surgeon General of the U. S. Public Health Service, in which he said the Service was especially anxious to put on a program for the control of venereal diseases and he requested the appointment of a committee in this State to cooperate with Federal authorities in the promotion of this work. Dr. Hutcheson said he had appointed a committee with Dr. Ennion S. Williams as chairman and they had already prepared a very comprehensive report, and he was sure the committee would be glad to furnish information on their work to any one interested in this question.

As it has been customary for two members of the Council to prepare the year's budget to be presented to the Council at its annual meeting, Dr. Hutcheson appointed Dr. R. W. Miller and Dr. C. E. Martin as a Budget Committee to bring in this report.

The secretary said that it had been customary to publish minutes of the winter meeting of the Council in the issue of the MONTHLY just before the meeting, in which appeared also reports from the various committees. She asked if the president and the Council wished to adhere to that plan or to have them published promptly that the members may be acquainted with the actions of this body. The members felt it would be wise to publish them in the next issue of the journal.

Dr. Hutcheson said that a telegram had been received from the American Medical Association calling attention to an editorial in *The Journal of the American Medical Association* for January 16th, including a resolution adopted by the Board of Trustees of the Association with regard to the reorganization of governmental medical activities. Dr. Hutcheson then presented the following resolutions which he had prepared after consultation with Dr. Riggin, State Health Commissioner, and suggested that they be transmitted to the President of the United States, the Virginia members of Congress, and to the Surgeon General of the U. S. Public Health Service:

> Reports of official recommendations to separate the U. S. Public Health Service from the U. S. Treasury Department and make it a subdivision of a proposed U. S. Department of Social Welfare, or of an administrative equivalent, actuate the Council of the Medical Society of Virginia to register objections to such action in the following resolutions:
>
> WHEREAS, As a Bureau of the U. S. Treasury Department, the U. S. Public Health Service for all practical, professional, and official purposes, has been a separate administrative entity, being supervised in detail by the Treasury Department only in budgetary and other financial matters; and
>
> WHEREAS, The U. S. Public Health Service, thus functioning as a separate administrative and policy-developing unit under the Treasury Department since its organization, has rendered, and continues to render, notably efficient service in the fields of preventive medicine, research, and public health; and
>
> WHEREAS, The prestige and influence of the U. S. Public Health Service is now recognized by the people as well as by the medical profession, and such influence and prestige is essential for the protection of the public health; and
>
> WHEREAS, The technical and scientific problems involved in the effective functioning of this type of service require that the administrative direction be centered in a physician who has had administrative training and experience and whose supervision in no manner will be directed or curtailed by an unqualified superior; and
>
> WHEREAS, Assuming that the direction of the proposed Federal Department of Social Welfare, or of its administrative equivalent, would be given to a qualified physician, the present problems of Social Welfare are so great in themselves as to tax to the utmost the work of such appointees; and
>
> WHEREAS, The Public Health Service, as now administered by the Federal Government, is a major activity; now, therefore, be it
>
> RESOLVED, That the Medical Society of Virginia, through its Council, in regular session assembled, definitely opposes any proposal to make the U. S. Public Health Service a bureau or other governmental subdivision of a Federal Department other than of the Treasury Department; and be it further
>
> RESOLVED, That the Medical Society of Virginia strongly urges, in the event of any reorganization affecting the U. S. Public Health Service, that a Federal Department of Public Health be created to include all Federal health activities except those concerned with the military establishments; and be it further
>
> RESOLVED, That copies of this preamble and of these resolutions be transmitted to the President of the United States, to each Senator and Representative in Congress from Virginia, and to the Surgeon General of the U. S. Public Health Service.

Dr. Martin moved the adoption of these resolutions, after which they were freely discussed, all being of the opinion that the work of the Public Health Service is so important and far reaching that its activities should not be subservient to any other departmental interests. The motion was seconded and adopted.

Dr. Blanton suggested that it might be well to publish the resolution in the MONTHLY so that all members might know of this action.

Dr. Blanton asked if the editor should express comments or views in conflict with those expressed in the Council should he not agree with them. It was felt that

the editorials should as nearly as possible support the officers of the Society but that the editor should have free rein on scientific matters.

A letter from the American Pharmaceutical Association with regard to certain legislative matters was presented but as no member of the Council was acquainted with what was intended, this was tabled.

A communication from the American Medical Association with regard to the Council of State Governments was ordered referred to the Committee on Legislation.

A request for $10.00 to make a survey as to how many doctors would be interested in Doctors' Club residences was tabled.

It was announced that the Kentucky State Medical Association is buying the home of Dr. Ephraim McDowell in that State and had sent a request for contributions to this fund. As the Society has already erected a memorial to Dr. McDowell in Rockbridge County, Virginia, the place of his birth, it was voted to table this request as an opportunity is being given interested individual doctors to contribute to the fund.

Under new business, it was announced that Dr. Riggin had advised that the State Health Department would be glad to cooperate in any way possible in the work of the Committee to Study the Pnuemonia Situation in Virginia.

In further reference to accepting the invitation from the Roanoke Academy of Medicine to meet in Roanoke in the fall, the secretary was instructed to remind them that in accordance with resolution adopted in 1932, no entertainment was expected.

Dr. Blanton wished to know how the Council felt in regard to giving over Wednesday evening, at the time of the annual meeting, to social rather than scientific matters. Dr. Hutcheson said that several societies took that occasion at the Staunton meeting to hold dinner gatherings and he rather liked the plan.

In speaking of the program, Dr. Bowyer suggested that he felt some of the members from his section would be more interested if one session were given over to something like a post-graduate course. He thought there might be about six men assigned to this session, each to give an epitome of the latest advances in their fields. It was stated that if the idea were to have these men come from out of the State, the president is limited to only two guests, and it was felt that the Program Committee would have to handle the program in accordance with material they have.

Adjournment followed.

AGNES V. EDWARDS,
Secretary.

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia.

The report of the State Health Department's bureau of communicable disease, as compiled for the month of January, shows the following cases compared with the same month in 1936.

	1937	*1936*
Typhoid and Paratyphoid	26	19
Diphtheria	145	103
Scarlet Fever	192	222
Measles	667	98
Meningitis	42	15
Poliomyelitis	2	1
Rocky Mountain Spotted Fever	0	0
Typhus Fever	0	0
Undulant Fever	1	3
Tularaemia	5	15
Smallpox	1	0

SHELLFISH STORAGE EXPERIMENTS

The Department has established an experimental wet-storage shellfish plant at Willoughby Spit in Norfolk. The tanks are supplied with chlorinated water. The purpose of the experiments is to demonstrate that this type of storage is sound commercially.

Virginia's shipments of oysters and clams in the shell run into hundreds of thousands of bushels annually. Since harvesting is dependent somewhat upon weather conditions, and also because demand is a variable factor, oysters and clams to be marketed in the shell must be kept alive by wet storage. It so happens that locations for storage floats in the immediate vicinity of docks and packing houses seldom are available because of pollution danger due to shore drainage or passing boats.

One of the large companies in New York successfully has used the present process for several seasons. However, owing to climatic conditions peculiar to Virginia, further proof regarding the economic soundness of this type of storage is required.

The laboratory connected with the station is equipped for chemical and bacteriological tests. The WPA has furnished all material and most of the equipment and labor at an aggregate cost to date of $2,800. The work is being conducted under the supervision of the Department's bureau of sanitary engineering. The Commission of Fisheries also is cooperating in this study. The results of the experiments are being watched with interest by the shellfish industry.

LOCAL HEALTH DEPARTMENTS APPROVED

The State Association of County Supervisors, which met recently in Roanoke, definitely approved

the Department's policy of establishing local health departments. Moreover, the advisability of extending this service to include eventually all counties within the Commonwealth was proposed.

This action on the part of groups, intimately connected and concerned with health activities, appears to evidence the quality of performance and the results obtained by the local health units already established in twenty-two jurisdictions.

BIRTH DATA FOR THE CRIPPLED CHILDREN'S BUREAU

The bureau of vital statistics has planned to add several questions to its present birth-report form covering congenital and other malformations caused by birth injuries.

The information thus reaching the Department will be made available to the crippled children's bureau, whose prompt use of the facts materially will aid in its reconstructive work.

FLOOD ASSISTANCE

Responding to an appeal for sanitary engineers made by the U. S. Public Health Service during the recent Ohio River flood, the Commissioner of Health detailed W. H. Shewbridge, Eugene C. Meredith, and Norman Phillips, Jr., of the Department's bureau of sanitary engineering, to the Louisville, Kentucky, area. These officers are located respectively at Lexington, Danville, and Madisonville, Kentucky. They are working under the direct supervision of J. K. Hoskins, Sanitary Engineer of the U. S. Public Health Service.

Reports recently received by the Department indicate that these men will continue their emergency activities for several weeks. At the present time they are supervising the purchase and distribution of materials and equipment that will be needed when the rehabilitation work gets under way.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. FRANKLIN D. WILSON, 5352 Studeley Avenue, Norfolk.

President-Elect—MRS. JAMES B. STONE, 15 Maxwell Road, Richmond.

Corresponding Secretary—MRS. C. C. SMITH, 1219 West Princess Anne Road, Norfolk.

Recording Secretary—MRS. F. O. PLUNKETT, 2 Riverview Place, Lynchburg.

Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.

Chairman, Press and Publicity—MRS. W. AMBROSE MCGEE, 4107 Kensington Avenue, Richmond.

Meeting of the Board of the State Auxiliary.

The Midwinter Board meeting was held in Norfolk on February 3, at eleven A. M. with twenty members present.

Reports from committee chairmen and county presidents showed much progress and interest in the work of the Auxiliary.

Especially satisfactory was the report of Mrs. J. R. Hamilton, *Hygeia* Chairman, who reported eighty-one subscriptions and renewals since October.

It was decided that the State Auxiliary should compile a handbook for county auxiliaries and Mrs. William Lett Harris, Mrs. Joseph Bear and Mrs. Fletcher J. Wright were asked to do this.

The Revision Committee, Mrs. William Lett Harris, Mrs. Joseph Bear and Mrs. Fletcher J. Wright, presented a new constitution, which was approved by the Board and will be presented for final adoption at the State meeting in Roanoke in October.

Dr. Moncure brought us a message from the Advisory Council. He advised that we inform ourselves as much as possible on the subject of Prevention of Venereal Disease but that we take no action in trying to get this subject taught in High Schools until instructed further by the Medical Society.

Mrs. Fletcher J. Wright reported that contributions for the Auxiliary Tuberculosis Sanatorium bed have been coming in but that all Auxiliaries have not yet contributed. The disbursement of this fund was left to the discretion of the Committee.

Resolutions for Dr. Hodges were presented by Mrs. Southgate Leigh, copy of which is printed in this Journal.

After the morning session the president, Mrs. Franklin D. Wilson, was hostess to those present at an informal luncheon at her home, after which the business was continued until three o'clock when the meeting adjourned.

Resolutions on Dr. Hodges.

It is with a feeling of profound sorrow that the Woman's Auxiliary to the Medical Society of Virginia records the death of its friend and advisor, Dr. James Allison Hodges, of North Carolina and Richmond, Virginia.

"Tis the human touch in this world that counts,
The touch of your hand and mine."

And so, we the women of the Auxiliary mourn today

"As we long for the touch of a vanished hand
And the sound of a voice that is stilled."

The facts of Dr. Hodges' life speak more eloquently of the worth of the man than any tribute within our power to render. A brief review is all that can be attempted here. Dr. Hodges was a man of broad and liberal culture. As a physician, the human touch was beautifully demonstrated in faithful devotion to his patients. His high professional standing was recognized by his fellows, and he filled with distinction the presidency of numerous medical societies in his city and State.

Dr. Hodges gave unstintingly of his time and energy to the advancement of this organization, inspiring our women with courage, confidence, and faith in our mission—the medical profession. In his memory the spirit of the Auxiliary will continue the same loyal support, and cooperation will be passed to those whom he left to carry on. Death cannot destroy that which never dies, character survives, good lives on, and influence is immortal.

THEREFORE, BE IT RESOLVED, by the Auxiliary to the Medical Society of Virginia, that in the passing to a higher service of Dr. James Allison Hodges, this organization has suffered the keen loss of a most faithful friend, a staunch supporter of our work, with the ability and will to serve whenever our welfare was concerned. He will be greatly missed.

AND RESOLVED, that these resolutions be spread upon the minutes of this meeting, and that they be published in the VIRGINIA MEDICAL MONTHLY.

ALICE LEIGH.
(MRS. SOUTHGATE LEIGH.)

The Medical Auxiliary in Petersburg.

The Petersburg Hospital received a supply of materials to replenish its equipment at the annual linen shower held in February at the Nurses' Home where the gifts were on display. Cooperating with the Medical Auxiliary in securing the shower were all of the white churches, several Negro churches and the Lions Club. The shower included 110 sheets, 191 pillow cases, 86 bath towels, 63 face towels, eight kitchen towels, 63 wash clothes, 13 bedspreads, 16 blankets, five bed pads, 52 yards of unbleached sheeting, 22 yards of toweling, and $35.75 in cash.

At the meeting of the Auxiliary when the shower was presented, there was the largest attendance ever held. Many visitors interested in this phase of the auxiliary work and in the hospital were present. Mrs. C. W. Lynn, president, was in the chair. Mrs. H. M. Snead had arranged an interesting program as follows: The Rev. J. A. Engle made a talk on the responsibility of citizens to a community hospital, Mrs. Florence Wilson Roper read one of her poems, and vocal selections were rendered by the Nurses' Glee Club.

The Auxiliary to the Norfolk County Medical Society

Made an appropriation for the maintenance of a bed at a State Tubercular Sanatorium at a meeting held February 10.

At the same time we began plans for a card party to be held at the Town Club on the afternoon and night of Wednesday, April 7, the proceeds to go toward the auxiliary bed in the Victory Memorial Tubercular Hospital, now under construction on the Virginia Beach Boulevard.

The Auxiliary also decided to observe doctors' day at the April meeting. RUBY D. BUTLER.

Cooperation Asked.

As the MONTHLY, like other publications, depends to a great extent upon the revenue from its advertising to publish a journal to meet the demands of its readers—doctors and their wives—it will be appreciated if the members of the Auxiliary will look over the advertising pages each month and ask for information and samples of products in which they are interested.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Gilliland Laboratories, Inc.

Diphtheria Schick Test Toxin, Diluted Ready for Administration—Gilliland.

Diphtheria Toxoid-Alum Precipitated (Refined).

Eli Lilly & Co.

Suppositories Sodium Amytal, 3 grains.

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Tetrachlorethylene.—"Tetrachlorethylene contains not less than 99 per cent and not more than 99.5 per cent of CCl_2:CCl_2, the remainder consisting of alcohol." N. F. Tetrachlorethylene has been shown to be a useful anthelmintic for the treatment of hookworm infestation. It is the consensus of the investigators that tetrachlorethylene is less toxic than carbon tetrachloride and at least as efficacious as the latter drug. Untoward reactions are rare, but giddiness, vomiting and drowsiness have been reported in some cases.

Tetrachlorethylene-Calco.—A brand of tetrachlorethylene N. F., marketed in soft gelatin capsules each containing 1 cc. of tetrachlorethylene. Calco Chemical Co., Inc., Bound Brook, N. J. (J. A. M. A., January 2, 1937, p. 46.)

Pernoston.—Butyl—B-bromallyl barbituric acid.—Pernoston differs from barbital (diethylbarbituric acid) in that both of the ethyl groups of the latter are replaced, one by a (normal) secondary butyl group, and the other by a substituted brominated allyl group. The actions and uses of Pernoston are essentially similar to those of barbital, but Pernoston is more active than barbital and is used in correspondingly smaller doses. It is used in combating insomnia due to emotional strain and nervous instability. In therapeutic doses it is said to produce no demonstrable toxic effects on the heart, lungs, blood vessels and kidneys. It is supplied in the form of tablets, 3 grains. Riedel-de Haen, Inc., New York.

Gold Sodium Thiosulfate-Merck.—A brand of sodium gold thiosulfate-N.N.R. (New and Nonofficial Remedies, 1936, p. 223.) It is marketed in the form of ampuls 0.01 Gm., 0.025 Gm., 0.05 Gm., 0.10 Gm., 0.20 Gm., 0.25 Gm., 0.30 Gm., 0.50 Gm., 1.0 Gm. Merck & Co., Inc., Rahway, N. J.

Ampoules Pentobarbital Sodium-Lilly, 0.5 Gm. (7½ grains).—Each ampule contains pentobarbital sodium-Lilly, 0.5 Gm., and is accompanied by a 10 cc. size ampule of distilled water. Eli Lilly & Co., Indianapolis, Ind. (J. A. M. A., January 16, 1937, p. 206.)

Propaganda for Reform

The Nutritional Significance of Gelatin.—The Council on Foods has endeavored to evaluate the nutritional claims made for gelatin. In view of the available evidence the Council believes that gelatin properly made is a wholesome food, that it has special usefulness when one desires to add variety to the diet by incorporating gelatin in nutritious soups or pleasant desserts, and that for these reasons it is often a useful food for inclusion in the diet of healthy persons or of sick or convalescent patients. Gelatin appears to be well tolerated. The claim that gelatin is an aid in the digestion of milk, however, is in the opinion of the Council not established. The claim that gelatin is of value as a source of aminoacetic acid in the treatment of some of the myopathies cannot be recognized; in the light of present evidence, gelatin has no special significance as a source of amino acids in the diet. Indeed, it is notoriously deficient in certain essential amino acids. (J.A.M.A., Dec. 26, 1936, p. 2132).

Painting the Orange.—Today the orange is universally recognized as a rich source of vitamin C and therefore a desirable fruit for children. The natural color and other characteristics of the rind vary with different varieties and with the season. Once these features served to some extent as marks of identification. This is not true today, when there is a current tendency to "improve on nature." Several years ago the practice of exposing oranges to ethylene gas for from two to four days was introduced. The ethylene causes a blanching of the green color and a consequent unmasking of the yellow pigments also present in the skin. The United States Department of Agriculture has ruled that this process does not in itself constitute adulteration. More recently a rapid method of coloring has been employed. The fruit is dipped in a solution of a harmless coal tar dye, which gives to the resulting "painted oranges" a more uniform, brilliant color. Food laws require that the presence of dyes must be declared by having the phrase "color added" stamped on each orange. The state of Florida has recently provided rigid regulation of the packaging and marketing of citrus fruit according to more exacting standards than those required by the federal government. The United States Department of Agriculture accordingly has agreed to wait until September 1937 before action will be taken on fruit shipped in interstate commerce. The Florida regulations in large measure should serve to remove the necessity for federal action. Accurate information concerning the effect of the artificial coloring of oranges on the consumption of the fruit is not available. Consumers have questioned whether the colored oranges are of high quality. Some consumers have expressed the opinion that colored oranges do not keep as well as the untreated russet colored fruit. Others have asked whether the "painted" rind is suitable for making marmalade and candied orange peel. The promulgators of the coloring of oranges should arrange to answer these questions by scientific evidence. (J.A.M.A., Dec. 26, 1936, p. 2136).

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Editorial

The Public Health Service.

Elsewhere in this issue of the VIRGINIA MEDICAL MONTHLY is published a resolution unanimously adopted by the Council of the Medical Society of Virginia at its last meeting in respect to political threats directed at the Public Health Service. The resolution of the Council is an unequivocal expression of disapproval of any action that would trammel the Public Health Service in its magnificent work.

In this connection it might be well to recall just how extensive and colossal are the activities of the Public Health Service. It employs some 382 officers and 620 nurses, and requires a budget of close to fifteen million dollars a year. It includes the quarantine service, which embraces some sixty-five continental and insular stations, operating at a cost of more than a million dollars a year. It operates the Marine Hospitals, twenty-six in all, which "furnish outpatient and hospital treatment to American seamen and other legal beneficiaries in 154 ports of the United States and its possessions." All told more than 300,000 patients are cared for annually in these institutions at a cost of approximately seven million dollars. It maintains a division of scientific research which is at present busily studying cancer, heart disease, leprosy, malaria, Rocky Mountain spotted fever, tularemia, sylvatic plague, malnutrition, child hygiene, the dermatoses, stream pollution and the tick. It maintains the National Health Institute where $65,000 are spent annually upon the research investigation of all types of disease. It maintains a division of venereal diseases with a clinic at Hot Springs, Arkansas, where more than 8,000 applicants receive 235,000 treatments annually. This department by a program of education, clinical studies, research and cooperation with state health departments is spending about $80,000 in a fight to lower the venereal morbidity, a fight which has received tremendous impetus in recent months from the new head of the Service, General Thomas Parran. It maintains a mental hygiene division where studies in drug addiction are in process and where the investigation of cause, frequency and prevention of mental disease is being pursued at a cost of more than a half million dollars a year. Finally it makes a not inconsiderable contribution of sanitary reports and statistics, with at least two valuable publications, the familiar *Public Health Reports* and *Hospital News*.

The Social Security Act in its public health provisions has made possible for the first time in this country a national health program. Through this act and the appropriations that have been made under its authority investigative activities and a cooperative health service have been actively promoted. Important as the Public Health Service has been in the past, under the New Deal and the increasing so-

cial consciousness of the American people it is destined to play a part many times more important.

World Health Conditions.

The prevalence of communicable disease throughout the world under modern conditions of travel and communication is a matter of constant concern to our Public Health Service. One of its important duties is the safeguarding of the people of this country from communicable diseases brought in from other countries. No serious epidemic occurring anywhere in the world escapes its attention. During 1935, 334 cases of cholera were reported in the world. Thanks to our excellent sanitary service we had only a few scattered cases in the Philippine Islands. During the same year in the whole world there were 48,000 cases of plague with 42,000 deaths. There had been twice as many cases the year before. Plague is now a disease of interest in the United States since plague infested rodents have in recent years been found in certain of our states and last year three cases of the disease were reported. Smallpox was on the wane in 1935. There was only one case in England and Wales. At least six European countries reported none. In the United States there were nearly 8,000 cases, while in India where the disease prevails in virulent form there were 67,800 deaths. During the same year there were 87,000 cases of typhus fever, many of them in South America and Mexico. Yellow fever of course was reported from both South America and Africa.

Oxygen in Pneumonia.

In reviewing the known facts concerning oxygen therapy in the treatment of pneumonia, H. J. Moersch in a recent issue of the *Proceedings of the Mayo Clinic,* has made clear certain important points. He reminds us that the rationale of oxygen administration is threefold: 1. to prevent and combat anoxemia, believed to be an important cause of pulmonary edema and therefore capable of deciding the issue in pneumonia; 2. to make good oxygen want in the tissues, always increased in fever and particularly in the fever of pneumonia where the rate of blood flow cannot be adequately compensatory, and tissue death may occur from oxygen starvation; 3. to lessen cardiac load, circulatory collapse being still held to be the mechanism of death in pneumonia. Dr. Moersch reviews the methods of administration of oxygen,—the oxygen chamber, the tent, the funnel, the nasal catheter, and the intravenous and subcutaneous introduction. The swing of the pendulum is now in favor of a properly adjusted catheter in the nares because it is both less expensive and less upsetting to the general management of the case.

There are those who still minimize the usefulness of oxygen in pneumonia. Probably they are haunted by the spectre of ninth hour administration as an all too frequent futile terminal gesture. There are others who regard cyanosis as the sole criterion of oxygen administration in pneumonia, being convinced that anoxemia and cyanosis develop *pari passu* and that without cyanosis there is no need for oxygen. Still others, however, share with Moersch the belief that oxygen may have distinct preventive indications, warding off pulmonary edema, favoring tissue metabolism, and lightening heart load.

Censored Advertising.

Within recent days the medical profession has been widely circularized concerning a product lately placed upon the market, protamine zinc insulin. Since Hagedorn reported this valuable modification of insulin in 1935 we have been led to believe that we might at any time expect its early commercialization. The expected has now happened and the medical profession welcomes the new weapon in its struggle with diabetes. The new preparation will not entirely displace old insulin. Its main indications will be in those cases where unmodified insulin causes frequent hypoglycemic reactions or is otherwise unable to provide adequate control, and "in those cases where the original preparation requires to be administered in several doses daily." We are warned that as yet this preparation is not to be employed in diabetic coma, in diabetes complicated by infection, or in the preoperative preparation of the diabetic.

As interesting as these facts are, perhaps more interesting is the way in which this announcement is made. We have before us the printed advertisement of the preparation by two outstanding makers. From the first word of the first paragraph to the last word of the last paragraph, the two pamphlets are identical. They carry the same historical note, the same indications and dosage, the same cautions, the same number of units in the same 10 cc. sized vials. Only the names of the two firms and the format differ. The reader recognizes some unseen hand of power and wisdom behind this studied announce-

ment of the new biological preparation. How much therapeutic confusion might be avoided if some central authority controlled in this same way all the thousands of preparations that now flood the market. If such should ever come to pass, one thing can be said with certainty, the useful preparations could be numbered in hundreds rather than in thousands as is now the case.

Department of Clinical and Medical Education of the Medical Society of Virginia

The first meeting of the Department of Clinical and Medical Education since its reorganization in October was held at the Richmond Academy of Medicine Building in Richmond, on February 10. The chairman, Dr. P. St. L. Moncure and the following members were present: Drs. I. C. Riggin, Lee Sutton, and John R. Hamilton. The Committees on Child Welfare and Maternal Welfare were invited to attend the meeting and the following were present: from the Child Welfare Committee, Dr. Frank Wilson, Chairman, and Drs. J. B. Stone, W. B. McIlwaine, J. M. Bishop, and R. D. Bates; from the Maternal Welfare Committee, Dr. F. O. Plunkett, Chairman, and Drs. C. J. Andrews, M. P. Rucker, T. J. Williams, and A. M. Groseclose. The field clinicians, Dr. Jay M. Arena in Pediatrics and Dr. L. L. Shamburger in Obstetrics and Gynecology, were also present as well as Drs. B. B. Bagby and A. L. Carson, Jr., of the Bureau of Child Health.

Dr. Riggin at the request of Dr. Andrews described briefly the plan under which the Department of Clinical and Medical Education obtained assistance from the Children's Bureau under the Social Security Act and the disposition made of other funds received by the State Department of Health. Dr. Andrews reported on a resolution passed by the Maternal Welfare Committee recommending prenatal and postnatal clinics in localities in the State.

The chairman read a letter from Mrs. Frank Wilson, President of the Woman's Auxiliary, offering assistance in an educational program to disseminate information on venereal diseases. It was considered advisable to defer action on this matter pending the formulation of a well-defined program. Dr. Riggin was appointed chairman of a committee to confer with educational authorities and proceed with the organization of such a program. The Executive Secretary of the Medical Society of Virginia was requested to inform local societies that Dr. L. J. Roper, recently appointed Director of the Bureau of Venereal Diseases, and Dr. Otis Anderson of the United States Public Health Service, are available for appearance on local programs to discuss plans for dealing with venereal diseases in Virginia. The Acting Executive Secretary made a tentative report covering the work of the Department for the period from September 4 to December 31.

PEDIATRICS:

Dr. Arena has just completed a course in Roanoke, Bedford, and Franklin Counties. As announced previously, meetings were held in Roanoke, for both white and colored doctors, in Salem, Bedford, and Rocky Mount. Forty-six doctors and three nurses attended meetings in one or another of the centers.

For five weeks, until March 13, Dr. Arena will be in Pittsylvania, Patrick and Henry Counties, offering the course concurrently in Catham, Danville, and Martinsville.

OBSTETRICS:

Dr. Shamburger has just finished conducting his course in Petersburg, for the white and colored doctors of that city and the nearby towns and counties, and in Courtland, for the doctors of Southampton County. Thirty-nine doctors attended the meetings in Petersburg and Courtland.

Until March 13, Dr. Shamburger will be in the Northern Neck of Virginia, conducting his course alternately in Wicomico and Warsaw, and in the Mid-Tidewater section. In this area he has held one meeting in Salula and will hold the other meetings in his course at Gloucester Court House, West Point, Millers Tavern, and Saluda again.

The response to both these post-graduate courses is increasingly enthusiastic, as is attested not only by replies to questionnaires, but by constantly increasing attendance, the larger number of doctors

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who attend throughout, and the greater number of registration fees paid.

At its meeting the Department voted to continue charging a registration fee of $2.50 for each course, and voted also to continue the present policy of making these courses available, as far as possible, to every doctor in the State, however remote.

JNO. ALEX RORER,
Acting Executive Secretary.

The Stuart McGuire Lectures and the Post-Graduate Clinics of the Medical College of Virginia

Will be held in Richmond, beginning in the afternoon of March 24, through the evening of March 25. In view of the campaign now being waged in this State for the control of the venereal diseases, syphilis is the subject selected for discussion and the following program has been arranged:

WEDNESDAY, MARCH 24—2 P. M.

2:30 P. M.—Practical Points in Securing Specimens for Laboratory Diagnosis and Interpreting of Reports—Dr. Otis L. Anderson.
3:00 P. M.—Syphilis of Childhood—Congenital and Acquired—Dr. Louise Galvin.
3:30 P. M.—Prenatal Syphilis—Dr. H. Hudnall Ware, Jr.
4:00 P. M.—What is Adequate Treatment?—Dr. Thomas Murrell.
8:15 P.M.—Stuart McGuire Lecture "The Diagnosis of Syphilis by the General Practitioner"—Dr. J. Earle Moore.

THURSDAY, MARCH 25—9:30 A. M.

9:30 A. M.—Gonorrhea—Diagnosis and Treatment—Dr. Clyde F. Ross.
10:00 A. M.—Contacts in Syphilis—Dr. Dudley C. Smith.
10:45 A. M.—Some Problems the Pharmacists Have in the Venereal Disease Program—Speaker to be supplied.
11:00 A. M.—Neuro-syphilis—Dr. Finley Gayle.
11:30 A. M.—Cardio-vascular Syphilis—Dr. William B. Porter.
1:15 P. M.—Luncheon.

AFTERNOON

2:30 P. M.—Anti-Luetic Drugs and their Reactions—Dr Kinloch Nelson.
3:30 P. M.—Round Table Discussion.
4:30 P. M.—Picture and Record "For All Our Sakes"—Dr. L. J. Roper.
8:15 P. M.—Stuart McGuire Lecture "The Management of the Wassermann—Fast Patient"—Dr. J. Earle Moore.

NOTE: Luncheon on Thursday will be served at Cabaniss Hall.

There will be no registration fee for either the clinics or the lectures.

Proceedings of Societies

The Virginia State Board of Medical Examiners,

At its semi-annual meeting in December, granted certificates to the following doctors to practice medicine in this State, a number being licensed by reciprocity:

Dr. Joseph Albert Abercrombie, Richlands.
Dr. Roger Cole Anderson, Bedford.
Dr. Ralph Gregory Beachley, Abingdon.
Dr. Sullivan Gale Bedell, University.
Dr. Lorenzo Robert Berry, Washington, D. C.
Dr. Garvey Bruce Bowers, Stonega.
Dr. Copeland Connelly Bowers, Dunbar.
Dr. Lloyd Ambrose Busch, Fredericksburg.
Dr. George McClave Cultra, Amarillo, Tex.
Dr. George Brackett Dowling, Alexandria.
Dr. Wesley Fry, Fort Hunt.
Dr. Paul William Gutsche, Stuarts Draft.
Dr. Robert Dewey Hollowell, Charlottesville.
Dr. Theodore Kohn, Richmond.
Dr. Clarence Cameron Kress, Quantico.
Dr. J. Rollins McGriff, Arlington.
Dr. James William McManus, Jr., Covington.
Dr. Eugene Andrew MacCornack, New York, N. Y.
Dr. Oscar Noel Morison, Christiansburg.
Dr. Charles William Ozier, Washington, D. C.
Dr. Harris Preston Pearson, Roanoke.
Dr. John Gordon Rennie, Richmond.
Dr. Clinton Hillyer Richey, Valley Head, Ala.
Dr. John Walton Ross, Jr., Galax.
Dr. Frank Bernard Schultz, Washington, D. C.
Dr. Selwyn Ladenburg Steel, Boston, Mass.
Dr. Daniel Clarence Steelsmith, South Boston.
Dr. Francis Nicholson Taylor, Petersburg.
Dr. Porter Paisley Vinson, Richmond.
Dr. Clifton Robert Wallace, Washington, D. C.
Dr. Frederick Griffiths Wandall, Clayton, N. J.
*Dr. Joseph Augustus White, Richmond.
Dr. John Addison Wolfe, Glade Spring.
Dr. Edward William Wood, Beckley, W. Va.
Dr. Louis Bernard Ziv, Portsmouth.

*Verification certificate issued account applicant having practiced prior to 1885.

The Mid-Tidewater Medical Society

Held its regular quarterly meeting in West Point, on January 26, with Dr. Clarence Campbell, of Sparta, presiding.

The program consisted of the following talks by

Richmond doctors: "Plans of the Medical Society of Virginia for the Coming Year as Relating to Organized Medicine," by Dr. J. Morrison Hutcheson, President of the Medical Society of Virginia; Dr. Wyndham B. Blanton, chairman of the Pneumonia Commission of the State Society, discussed the plans and measures to reduce the incidence and mortality of pneumonia in the State; and Dr. Lawrence T. Price spoke on "Malignancy of the Bladder."

The Auxiliary held a meeting at the home of Mrs. M. H. Harris the same day.

Among those present were: Dr. O. T. Amory, Newport News; Dr. James Smith, Gloucester; Dr. W. P. Jones, Urbanna; Dr. V. G. Stiff, Harmony Village; Dr. Hawes Campbell, Enfield; Dr. Clarence Campbell, Sparta; Dr. Jos. F. Phillips, Deltaville; Dr. J. R. Parker, Providence Forge; Drs. Frank Johns, Dewey Davis, L. T. Price, W. B. Blanton, and J. M. Hutcheson, Richmond, and Drs. M. H. Harris and W. S. Cox, West Point.

Members of the Society, their guests, and the Woman's Auxiliary were entertained by the local physicians at a dinner at the Community House.

The Augusta County Medical Association

Held its regular meeting on February 3 in Staunton, Va. At this meeting, Dr. James H. Watts, prominent neuro-surgeon of Washington, D. C., read a paper, which was discussed by Dr. Edwin P. Lehman and Dr. Wm. H. Parker, University of Virginia; Dr. Frank H. Leech, Lexington; and Drs. R. P. Bell, Alex. F. Robertson, Jr., and M. J. Payne, Staunton.

Plans were made and a committee appointed for suitably marking the site of the former residence of Dr. Alexander Humphries and the former location of one of America's first medical schools, in Staunton.

Forty-five doctors were present at this meeting.

The Alexandria Medical Society

At its February meeting, elected the following officers for the coming year: President, Dr. William B. Wilkins; vice-president, Dr. James W. Love; secretary-treasurer, Dr. James A. Gooch. All are of Alexandria.

Dr. Charles Canada of Falls Church, Va., presented an interesting paper on "Lead Poisoning in Children." The question of increased and improved hospital facilities was discussed and it is proposed to begin active negotiations to see what can be done along this line.

The Arlington County Medical Society,

At a recent meeting, elected the following officers for 1937: President, Dr. Ralph A. Quick; vice-president, Dr. Alfred M. Palmer; and secretary-treasurer, Dr. Robert H. Detwiler (re-elected). All are of Arlington.

During the past year, this Society has drawn up a minimum fee scale which was approved at a regular meeting and has been printed in diploma form suitable for framing so that it may be displayed in the doctors' offices.

The Lynchburg Academy of Medicine

Held its regular monthly meeting on February 1, at which time Dr. David P. Scott presented a paper on Pneumonia. This was followed by two moving picture reels on Oxygen Therapy. At this meeting the Academy went on record as being favorable to the payment of fees to physicians conducting Well Baby and Immunization Clinics, these fees to be paid from Federal funds available through the State Department of Health.

Dr. J. Wyatt Davis, Sr., and Dr. C. E. Keefer, both of Lynchburg, are president and secretary respectively of the Academy.

The Fourth District Medical Society

Held its regular meeting on January 26 in Chase City, Va., under the presidency of Dr. Thomas G. Hardy, Farmville.

The program was a symposium on Abdominal Emergencies, with the following participants: Dr. W. Lowndes Peple, Richmond, on "Resulting from Mechanical Condition, the Mentally Sick"; Dr. Carrington Williams, Richmond, on "Resulting from Infection, the Bacterially Sick"; Dr. J. H. Smith, Richmond, on "A Medical Instance of Abdominal Emergency, the Chemically Sick"; Dr. S. W. Budd, Richmond, on "Laboratory Aids in the Diagnosis and Treatment of these Conditions"; and Dr. Philip Jacobson, Petersburg, on "Conservatism in Gynecological Surgery." Dr. A. T. Finch, Chase City, and Dr. Wright Clarkson, Petersburg, opened the discussion on the last two papers.

A subscription dinner was held at Gregory Hall, following which a business meeting of the Mecklenburg County Medical Society was held.

Dr. C. E. Martin, Emporia, is secretary of the Fourth District Society.

News Notes

Roanoke Selected for Place of State Meeting.

The Council of the Medical Society of Virginia, at its winter meeting early in February, voted unanimously to accept the invitation of the Roanoke Academy of Medicine to hold its sixty-eighth annual session in Roanoke. The dates selected are October 12, 13, and 14.

Interesting Lectures Open to the Medical Profession.

The Stuart McGuire Lectures and the Post-Graduate Clinics of the Medical College of Virginia will be given concurrently again this year so that physicians from all parts of the State attending the clinics will be able to take advantage of the Stuart McGuire lectures also. The clinics will be held this year beginning at 2:00 o'clock on March 24. On the evening of the 24th, Dr. J. Earle Moore of the Johns Hopkins Hospital and Medical School will give a lecture on "The Diagnosis of Syphilis by the General Practitioner." On Thursday morning, March 25, post-graduate clinics will again be resumed. In the afternoon the clinics will continue until 5:00 o'clock. On the night of the 25th, Dr. Moore will speak on "The Management of the Wassermann—Fast Patient." There is no registration fee for either the clinics or the lectures and the College is anxious to have a large representation of physicians.

Because there has been so much public interest in the subject of the venereal diseases, the post-graduate committee has decided to build this year's post-graduate clinic around the subject of the venereal diseases spending most of the time on the discussion of syphilis. An interesting feature of the program will be the round table discussion on the last afternoon when physicians can bring up any problem they want discussed which has not been adequately covered in the program. The popular film-strip with talking record "For All Our Sakes" will be shown as the closing number on the clinic program.

Physicians from outside assisting the College faculty in these clinics in addition to Dr. J. Earle Moore, the McGuire lecturer, will be Dr. Dudley C. Smith of the University of Virginia, Dr. Otis L. Anderson of the United States Public Health Service, Dr. L. J. Roper of the State Health Department, and others.

Dr. Cecil to Speak in Richmond.

Dr. Russell L. Cecil of New York City has been invited to speak at the regular meeting of the Richmond Academy of Medicine on March 23—the evening before the Medical College of Virginia Clinics start—so that this week promises to offer much of interest to the medical profession. It is understood that Dr. Cecil will speak on the Pneumonia problem—a subject of paramount importance at this time.

Virginia Mental Hygiene Society Formed.

On February 20, the Virginia Mental Hygiene Society was organized with the purpose of stemming the rising tide of mental illness, conduct disorders and criminality in Virginia. Dr. Beverley R. Tucker, Richmond, was elected its first president, and Dr. Finley Gayle, Dr. Howard R. Masters, and Dr. O. B. Darden, all of Richmond, were chosen members of the executive committee.

The program included talks by Drs. Gayle, Masters, and Tucker, and Dr. Walter W. Young, Associate Professor of Psychiatry of the Emory University, School of Medicine, Atlanta.

The Board of Directors was named as follows: For one year—Dr. J. Morrison Hutcheson, Dr. M. Pierce Rucker, Dr. James King, Jr., Dr. Basil B. Jones, Dr. Douglas VanderHoof, Mrs. John B. Cary, Mrs. Marjorie Wyatt, and Miss Frances H. Ziegler. All of the above are from Richmond except Dr. King of Radford.

For two years—Dr. J. C. Flippin, University of Virginia, Dr. Lee E. Sutton, Richmond, Dr. Frank H. Redwood, Norfolk, Dr. Harvie deJ. Coghill, Dr. William H. Higgins, Dr. James K. Hall, Dr. W. T. Sanger, Mr. W. D. Ellis, Mr. Albert H. Hill and Rev. Thomas E. Mitchell. All of the last named are from Richmond.

For three years—Dr. O. B. Darden, Dr. David C. Wilson, Dr. Beverley R. Tucker, Dr. Howard R. Masters, Dr. R. Finley Gayle, Jr., Dr. Carrington Williams, Mrs. Donna Banting Bemiss, Hon. Herbert Cochran, and Rev. J. J. Scherer, Jr. Dr. Wil-

son is from the University of Virginia, the Hon. Cochran from Norfolk, and the others from Richmond.

Doctors in Masonic Offices.

At the annual communication of the Grand Lodge, Ancient Free and Accepted Masons of the Commonwealth of Virginia, held in Richmond in February, Dr. R. S. Griffith, of Waynesboro was elected grand senior steward; Dr. William R. Weisiger of Richmond one of the trustees; and Dr. L. C. Haynes of Mount Jackson was elected one of the district deputy grand masters.

Dr. William B. Lyles,

Spartanburg, S. C., an alumnus of the Medical College of Virginia, was elected president of the South Carolina Urological Association at its annual meeting held recently.

Dr. William Meade Burwell,

Of Chincoteague, Va., has been elected president of the Bank of Chincoteague, Inc., with banks at Chincoteague and New Church. Dr. Burwell is a prominent physician as well as business man of "the Shore" and is a past president of the Accomack Medical Society.

The Virginia Section of the American College of Physicians,

Of which Dr. J. Morrison Hutcheson of Richmond is governor, held a meeting at the Academy of Medicine Building in Richmond on February 10. There were thirty-six members present and the scientific program was put on by the Richmond fellows. There was a general informal discussion of matters of special interest to the internists of the State, followed by dinner. It was decided to hold another gathering in Charlottesville the latter part of May.

This section was founded last year and Dr. Walter B. Martin of Norfolk is chairman, Dr. Charles M. Caravati of Richmond vice-chairman, and Dr. F. C. Rinker of Norfolk secretary.

The Virginia Neuropsychiatric Society,

Formed about a year ago for the advancement of all fields of neuropsychiatry in Virginia, held a meeting in Richmond on the afternoon of January 27, with the president, Dr. D. C. Wilson of the University of Virginia, presiding. At the scientific meeting, papers were presented by Dr. H. deJ. Coghill, Dr. E. H. Williams, Dr. Finley Gayle, Dr. James N. Williams, Drs. Howard R. Masters and W. G. Crutchfield, and Dr. J. A. Shield. At the business meeting, Dr. Finley Gayle of Richmond was elected president, Dr. F. H. Redwood of Norfolk vice-president, and Dr. T. N. Spessard of Roanoke secretary-treasurer. The meeting was followed by dinner at the Commonwealth Club.

Married

Dr. Charles Denbeigh Marchant of Harmony Village, Va., and Miss Marian Steptoe Fitzhugh of Urbanna, Va., January 28.

Dr. and Mrs. W. Randolph Graham,

Richmond, Va., will sail from New York on March 6 for a trip of several weeks through Southern Europe. They will also spend some time in Paris before returning home in May.

Medical College of Virginia News.

The annual Stuart McGuire lectures will be given March 24 and 25 in the auditorium of the Richmond Academy of Medicine. Dr. J. Earle Moore of Johns Hopkins will be the guest lecturer. The subjects of his two lectures will be "The Diagnosis of Syphilis by the General Practitioner" and "The Management of the Wassermann—Fast Patient." During the afternoon of the twenty-fourth and the day of the twenty-fifth the annual post-graduate clinics will be held. The emphasis in these clinics will be on venereal disease. The medical profession throughout the State is cordially invited to attend the lectures and the post-graduate clinics.

Dr. W. T. Sanger, president, and Dr. Lewis E. Jarrett, superintendent of the hospital division, attended the Congress on Medical Education and Hospitals in Chicago, February 15 and 16.

A new unit of the Saint Philip Hospital for the care of Negro orthopedic cases has been set up in the old Boys' Club on Twelfth Street near the hospital. This unit with thirty beds will meet more adequately the demand for the care of orthopedic cases for Negro children.

The portrait of Dr. Samuel Chiles Mitchell, president of the college during the session 1913-1914, and prominent figure in the field of education was unveiled at four o'clock, February 25, in the auditorium of the Richmond Academy of Medicine. The portrait is the gift of Mr. Webster S. Rhoads of Richmond and was painted by John Slavin. The

portrait was presented to the college by Dr. Allen W. Freeman, dean of the school of hygiene and public health, Johns Hopkins University, a former pupil of Dr. Mitchell. Dr. W. T. Sanger accepted the portrait in the name of the college and Mr. Lewis T. Stoneburner, III, president of the student body accepted it in the name of the student body. A grandson of Dr. Mitchell unveiled the portrait. The portrait will hang in McGuire Hall.

Mr. Howard W. Blakeslee, science editor of the Associated Press, will deliver the commencement address at the college on June 1.

Recent additions to the staff are Dr. J. Frank Hall of Rochester, New York, and Dr. Rudolf Leuchtenberger of New York City.

Dr. W. G. Crockett, Professor of Pharmacy, is the newly elected President of the American Association of Colleges of Pharmacy.

Five bronze plaques have been placed in the Egyptian Building as memorials to professors whose work there has been distinguished. These men are Dr. William H. Taylor, Dr. Lewis Webb Chamberlayne, Dr. George Ben Johnston, Dr. E. S. Gaillard, and Dr. Edouard Brown-Sequard. The plaques are in separate rooms and bear the name and dates of the doctor's service.

The University of Virginia Medical Society.

At the recent meetings of this Society the following programs were given: On November 30, Dr. Porter Vinson spoke on Some Unusual Manifestations of Pulmonary Tuberculosis, Drs. Frank Johns and Dean Cole discussed Our Experience in the Management of Empyema, and Dr. John S. Horsley, Jr., spoke on Recent Advances in Plastic Surgery; on January 11, Dr. C. C. Speidel showed a motion picture illustrating Injury and Recovery of Striated Muscle; on January 25, Dr. E. P. Lehman spoke on Spinal Anesthesia and Dr. Oscar Swineford on Cardiac Asthma; on February 8, Dr. E. F. Roberts, of Lederle Laboratories, showed moving pictures of Pneumococcus Typing and Pneumonia Sera and Pernicious Anemia.

News from the New York Polyclinic Medical School and Hospital.

Dr. Russell L. Cecil, Professor of Internal Medicine, gave a special lecture on January 13, on "Streptococcal Infections and Their Treatment."

At the January meeting of the Polyclinic Clinical Society, the following program was presented: "The Frequent Failure to Recognize the Presence of Disease of the Nasal Accessory Sinuses," by Dr. James W. Babcock, New York; and "Endocrine Obesity in Children," by Dr. Murray B. Gordon, New York.

At the February meeting, Dr. James R. Lisa, New York, presented a paper on "The Role of Acute Infection in Hypertensive Cardiac Failure"; and Dr. Pol N. Coryllos, New York, spoke on "Recent Advances of Thoracoplasty Collapse in Pulmonary Tuberculosis."

In March, Dr. H. A. Royster, Raleigh, N. C., will address the Society on the subject of "The Vermiform Appendix; Its Physiology and Pathology," and Dr. Herbert C. Chase, New York, will speak on "Carcinoma of the Breast," showing sound films in color.

Jefferson Medical College of Philadelphia.

The William Potter Memorial Lecture was delivered on February 11, by Dr. Henry A. Christian, Hersey professor of the Theory and Practice of Physic at Harvard Medical School. His subject was "The Fruition of a Clinician."

Dr. Louis H. Clerf, formerly Professor of Bronchoscopy and Esophagoscopy in the Jefferson Medical College, has been elected Professor of Laryngology and Bronchoscopy. Dr. Clerf, in addition to his present duties in the College and Hospital, will assume the duties formerly discharged by Dr. Fielding O. Lewis, who has been made Emeritus Professor of Laryngology and Consulting Laryngologist to the Jefferson Hospital.

Associated with Dr. Keyser.

Dr. E. Thomas Upson, of the class of '33, University of Virginia Department of Medicine, and since connected with hospitals in Baltimore and Washington, is now associated with Dr. L. D. Keyser in the practice of urology, at 909-911 Medical Arts Building, Roanoke, Va. He succeeds Dr. Rees Morgan who was associated with Dr. Keyser for several years but who recently opened independent offices in the same building.

Appointment by President.

Dr. J. M. Hutcheson, President of the Medical Society of Virginia, has appointed Dr. Fletcher J. Wright of Petersburg, as chairman of the Advisory Committee to the Woman's Auxiliary, *vice* Dr. J.

Allison Hodges who died recently. Dr. James B. Stone of Richmond was appointed to fill the vacancy on this committee of which Dr. P. St. L. Moncure of Norfolk is the third member.

Dr. J. E. K. Flannagan,

Recently with the W. P. A. Camp at Blackstone, Va., announces his change of address to Fort Eustis, Va.

Dr. Marion Seawell,

For ten years county health officer of Northampton County, N. C., recently resigned his position. High tribute was paid his work in expanding the health service from a one-man staff to an organization of five people and for reducing contagious diseases to what is believed a minimum. Dr. Seawell is a graduate of the Medical College of Virginia, class of '26.

The American Public Health Association

Announces that its sixty-sixth annual meeting is to be held in New York City, October 5-8, 1937. As the Association has not met in that city since 1921, a large attendance is expected.

Dr. Reginald M. Atwater, executive secretary of the Association, 50 West 50th Street, New York City, will be glad to give any information desired about the meeting.

Dr. Malcolm H. Harris,

West Point, Va., has been named vice-chairman of the Underprivileged Child Committee of Capital District of Kiwanis Clubs. This district is comprised of the clubs of Virginia, Maryland, Delaware and the District of Columbia.

Doctors Among Directors of Hospital.

Drs. E. L. McGill, Herbert C. Jones and W. B. McIlwaine have been named members of the board of directors of the Petersburg, Va., Hospital. Dr. McGill was elected secretary of the board.

Richmond Ophthalmological and Otolaryngological Society.

At the annual meeting of this Society held recently, the following officers were elected: President, Dr. A. F. Bagby; vice-president, Dr. Neilson H. Turner; and secretary-treasurer, Dr. R. W. Vaughan.

The International Conference on Fever Therapy

Will be held at the Waldorf-Astoria Hotel, New York City, on March 29, 30, and 31. There will be a scientific and commercial exhibit staged, and clinics will be held at the College of Physicians and Surgeons of Columbia University.

A large attendance of fever therapists from all over the world is expected. A very interesting and instructive program has been arranged and all of those who plan to attend are urged to register promptly with the general Secretary, Dr. William Bierman, 471 Park Avenue, New York City. The registration fee is $15.00.

Dr. Ayer C. Whitley,

Class of '35, Medical College of Virginia, recently at Meriden Hospital, Meriden, Conn., is now located with Company 1963, C.C.C., Bozeman, Mont.

Dr. William McCleery Junkin,

Recently surgeon to the Elkins, W. Va., City Hospital, has just located for practice in Fredericksburg, Va., with offices at 806 Princess Anne Street. Dr. Junkin graduated from the Medical College of Virginia in 1925 and was later connected with the surgical staff of the McGuire Clinic in Richmond before moving to West Virginia. He was made a fellow of the American College of Surgeons in 1933.

Dr. M. L. Rea,

Charlottesville, Va., has been appointed a member of the fish stocking and propagation committee of the local chapter of the Izaak Walton League of America.

The Post-Graduate Institute of the Philadelphia County Medical Society

Will be held for the second time in Philadelphia, April 12-16. The Institute will have an imposing list of speakers for its subject "Diseases of the Chest and Upper Respiratory Tract," and a large attendance is expected. At the dinner which will be on Wednesday evening, April 14, Dr. J. Shelton Horsley of Richmond, Va., will deliver the Dr. J. Chalmers DaCosta Oration on "Peritonitis."

Members of all county medical societies are cordially invited to register as members of the Institute and to attend the scientific sessions. Further information may be obtained from the Executive Office, Philadelphia County Medical Society, 21st and Spruce Streets, Philadelphia, Pa.

Richmond Tuberculosis Association.

Dr. Dean B. Cole of Richmond, Va., was the principal speaker before this Association at its meet-

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ing on February 17. He discussed "Lung Collapse" and also told of outstanding tuberculosis problems of the State. Drs. P. D. Lipscomb and Kinloch Nelson were re-elected two of the vice-presidents and Drs. Samuel Anderson, R. C. Bryan, T. Dewey Davis and Emily Gardner were re-elected directors. All are of Richmond.

Dr. Wright Clarkson,

Petersburg, Va., attended the meeting of the Eastern Section of the American Roentgen Ray Society, held in New York, January 28-30. On January 13, he was invited to address the Lancaster (Pa.) General Hospital physicians on "Cancer Control."

Changes Among Health Officers.

Dr. J. D. Hamner, Jr., has been transferred from the Arlington County Health Department to the position of Acting Health Officer of the Henrico County Health Department, effective February 15.

Dr. S. D. Gardner of the Valley Health District has left to take a course at the Johns Hopkins School of Hygiene and Public Health and Dr. B. R. Allen is Acting Health Officer in his absence.

Dr. R. L. Mason

Of Roanoke, Va., has recently been re-appointed surgeon-in-chief, Sons of Confederate Veterans, which appointment carries staff privileges on the staff of Commander-in-chief, Hon. W. Scott Hancock of St. Louis, Mo.

Dr. Mason was also recently appointed a member of the Manassas Battlefield Foundation Committee, S.C.V.

The Tri-State Medical Association of the Carolinas and Virginia

Held its annual meeting at the Monticello Hotel, Norfolk, Va., February 22 and 23, under the presidency of Dr. Douglas Jennings, of Bennettsville, S. C. There was an attendance of approximately two hundred and an excellent program was arranged, including addresses by two visitors of national prominence—Dr. Frank H. Lahey and Dr. E. P. Joslin, of Boston.

Asheville, N. C., was selected as the 1938 place of meeting and the following officers elected: President, Dr. Howard R. Masters, of Richmond, Va.; president-elect, Dr. J. Frank Highsmith, of Fayetteville, N. C.; vice-presidents, Dr. D. C. Wilson, of Charlottesville, Va., Dr. D. W. Ruffin, of Ahoskie, N. C., and Dr. C. N. Wyatt, of Greenville, S. C. Dr. J. M. Northington, of Charlotte, N. C., was re-elected secretary-treasurer.

Dr. Edwin J. Palmer,

Class of '34, Medical College of Virginia, recently assistant physician at the Gardner State Hospital, East Gardner, Mass., resigned this position the latter part of January and is opening offices for the practice of medicine and surgery in Clay, Kentucky. This being near the recent flood area, Dr. Palmer has been somewhat delayed in getting settled in his new location but will have offices in the National Bank Building.

The Alexandria (Va.) Gazette

Issued a Greater Alexandria Edition on the 15th of February, which is "The True Picture of a Growing City." From the articles by and about doctors and the local hospital, it is evident that the medical profession plays no small part in the making of the history of this progressive city.

The *Gazette*, established in 1874, is said to be the oldest daily newspapers in the United States. By the present and other editions, they prove their loyalty to and interest in the city and section they especially serve.

Books Available to Our Readers.

Recent acquisitions to the Library of the Medical College of Virginia, available to our readers upon request, are:

Abraham, J.—John Coakley Lettsom.
Bartlett, H.—Medical Social Work.
Boas & Goldschmidt.—The Heart Rate.
Bolduan, C. F.—Public Health and Hygiene. 2nd. ed.
Bredereck, H.—Vitamine und hormone und ihre technische Darstellung. Erster teil. Ergebnisse der Vitamin und Hormonforschung.
Cameron, A. T.—Recent Advances in Endocrinology.
Carver, A. E. *et als.*—Alcoholism in General Practice.
Chase, S.—Rich Land, Poor Land.
Cope, Z.—Early Diagnosis of Acute Abdomen.
Detwiler, S. R.—Neuroembryology.
Dickens & Dodds.—Chemical and Physiological Properties of the Internal Secretions.
Drinker & Hatch.—Industrial Dust: Hygienic Significance.
Flugel, J. C.—The Psychoanalytic Study of the Family.
Flynn, J. T.—God's Gold.
Funk, C. E.—What's the Name, Please?
Gillespie, R. D.—Sleep and the Treatment of Its Disorders.
Goodman, H.—Cosmetic Dermatology.
Josephson, M.—The Robber's Baron.
Lake, N. C.—The Foot.
Levy, R. L.—Diseases of the Coronary Arteries and Cardiac Pain.

Obituary Record

Dr. James Bernard Hackley,

Purcellville, Va., died February 4, following an operation. He was sixty years of age and a graduate in medicine of the former University of the South, Sewanee, Tenn., in 1902. Dr. Hackley had practiced in Purcellville for thirty-five years and was prominent in the civic life of that place. He had been a member of the Medical Society of Virginia for thirty-two years. His wife and a son survive him.

Dr. Robert Edward Fortune,

A member of the Medical Society of Virginia since 1903, died at his home in Damacus, Va., on December 26, death being due to pneumonia. He was a native of North Carolina and sixty-six years of age. Dr. Fortune graduated in medicine from the former University College of Medicine in Richmond, Va., in 1898, and had practiced at Damascus for thirty-eight years. He is survived by two sisters.

Dr. Samuel Wellington Maphis,

Well-known physician of Warrenton, Va., died January 26 in the Canal Zone, Panama, where he was spending the winter with his son. He was a native of Shenandoah County, Va., and sixty-nine years of age. Dr. Maphis studied medicine at the University of Virginia but received his degree from the University of Maryland in 1893. He practiced medicine in Warrenton for thirty-five years, during which time he was a member of the School Board and a prominent Mason. He was for a number of years a member of the State Board of Medical Examiners and a very active member of the Medical Society of Virginia. Dr. Maphis is survived by two sons, one of them being Dr. E. C. Maphis, also of Warrenton.

Dr. Gustavus M. Wallace,

Falmouth, Va., died January 28, at the age of eighty-eight. He was a graduate of the College of Physicians and Surgeons, Baltimore, 1871, and had practiced for many years in Stafford County. His wife and three children survive him.

Dr. Walter Asbury Newman,

Manassas, Va., died January 26. He was eighty-three years of age and a graduate of the Medical College of Virginia, class of '76. His wife survives him.

Dr. Benjamin Lowen Hume,

Mallory, W. Va., died November 26, of pneumonia. He was sixty-two years of age and a graduate of the Medical College of Virginia in 1900.

Dr. Charles Eugene Cheek,

Fuquay Springs, N. C., died November 6, of cerebral hemorrhage. He was fifty years of age and graduated from the former University College of Medicine, Richmond, in 1912.

Resolutions on the Death of Dr. Hodges.

The Neuropsychiatric Society has lost in the death of Dr. J. Allison Hodges one of its most valued members. Though born in North Carolina, he gave the best of his professional life to the state of his adoption. Coming to Richmond in 1893, Dr. Hodges was made professor of anatomy at the University College of Medicine, which position he held until 1896. In 1896 he was made professor of nervous diseases. From 1900 to 1904 he was Dean of the University College of Medicine, and President of that institution in 1904 and 1905. After the amalgamation of the University College of Medicine and the Medical College of Virginia from 1913 until 1927 Dr. Hodges was clinical professor of nervous and mental diseases, and from 1927 until his death he was emeritus professor.

Starting out in surgery and general medicine, Dr. Hodges soon gave most of his time to the practice of nervous and mental diseases and established the Hygeia Hospital in Richmond. He was an exceptionally good speaker and was called upon on various occasions to make speeches for the advancement of medicine and he became a member of many of the learned societies. Dr. Hodges was also strong in organization and committee work, having a splendid appearance and attractive personality. Dr. Hodges was a pioneer in nervous and mental work in the South and had a wide influence in all matters pertaining to medicine in this section of the country. He was a charter member of the Neuropsychiatric Society of Virginia and it is with deep regret that we record the loss of the services of this distinguished physician.

BEVERLEY R. TUCKER, *Chairman*,
FRANK H. REDWOOD,
HOWARD R. MASTERS.

Resolutions on Death of Dr. Perkins.

The President of the Petersburg Medical Faculty on the 23rd day of January, 1937, appointed a committee to express appropriate tribute of respect to the memory of Dr. Edward William Perkins.

WHEREAS, It has pleased the All-Wise Creator to take from our midst, our friend and associate, Dr. Edward William Perkins, and

WHEREAS, Our community has lost a valued citizen and the medical profession a man of esteemed reputation and of the highest ethical integrity, and

WHEREAS, We bow in humble submission to His Divine Will; now, therefore, be it

RESOLVED, That a copy of these resolutions be embodied in the minutes of the Petersburg Medical Faculty, a copy be sent to the local press and to the VIRGINIA MEDICAL MONTHLY and also to the bereaved family with the expression of our heartfelt sympathy.

FLETCHER J. WRIGHT, M. D., *Chairman,*
GEORGE H. REESE, M. D.,
E. L. MCGILL, M. D.,
E. W. YOUNG, M. D.,
W. M. BOWMAN, M. D., *Secretary.*

Resolutions on Death of Dr. Hargrave.

A called meeting of the Petersburg Medical Faculty was held at the Medical Arts Building on December 31, 1936, at 3 P. M., to take formal notice of the death of our friend, Dr. James H. Hargrave.

WHEREAS, It has pleased Almighty God to remove from our midst Dr. Hargrave; now, therefore, be it

RESOLVED (First), That his patients were devoted to him. He did many kind deeds and many acts of charity among them, especially for his poor country patients. These will miss him greatly not only for his goodness to them but also for his happy and cheerful personality which went a long way toward their eventual recovery; and

RESOLVED (Second), That we offer our sympathies to his family who lament his loss, and unite our regrets with those who have loved and admired him; and

RESOLVED (Third), That these resolutions be spread on the minutes of the Faculty; that a copy be sent to the family and to the VIRGINIA MEDICAL MONTHLY and be published in the local newspaper.

D. D. WILLCOX, M. D., *Chairman,*
JOHN M. WILLIAMS, M. D.,
L. S. EARLY, M. D.,
W. M. BOWMAN, M. D., *Secretary.*

Resolutions on Deaths of Dr. Johnson, Dr. Dudley and Dr. Butler.

The following resolutions were adopted by the Roanoke Academy of Medicine at a special meeting:

WHEREAS, It has seemed wise to the Great Physician to remove from our midst, so suddenly in the prime of his life, our fellow physician and brother, Dr. George Johnson:

We, the members of the Roanoke Academy of Medicine, in special meeting called, voice our submission to the decrees of an All-Wise Providence and express our appreciation of the service rendered by Dr. Johnson to the medical profession of Roanoke and to the sick and suffering of our community.

Dr. Johnson has made a place for himself in the hearts of all who knew him which can never be filled by another. His geniality, his friendliness, his loyalty, his generosity and his keen sense of humor endeared him to all who had the good fortune to be numbered among his friends.

BE IT RESOLVED, That a copy of these resolutions be furnished Dr. Johnson's family, be spread upon the minute book of the Academy of Medicine, and be published in our local papers, and in the VIRGINIA MEDICAL MONTHLY.

F. A. FARMER,
H. H. WESCOTT,
W. F. MANLEY,
Committee.

WHEREAS, It has pleased our Heavenly Father to call to eternal rest our fellow physician and co-worker, Dr. Morton Leonard Dudley:

We, the members of the Roanoke Academy of Medicine, in special meeting assembled bow in reverent and humble submission to the will of an unerring Father.

We extend our heartfelt sympathy to the family of our departed friend, who for a number of years held a responsible position with the Relief and Pension Department of the Norfolk and Western Railway, during which time he was a faithful member and regular attendant upon the meetings of our association. And,

BE IT RESOLVED, That a copy of these resolutions be sent to Dr. Dudley's family, a copy be spread upon the minutes of the Academy of Medicine and a copy sent the VIRGINIA MEDICAL MONTHLY.

Respectfully submitted,
C. D. NOFSINGER,
C. H. PETERSON,
H. B. STONE,
Committee.

In the death of Dr. W. W. S. Butler, which occurred December 15, 1936, the community has lost a capable, sympathetic, and conscientious physician. He spent fifty years in the service of the people of Roanoke and vicinity and was a man of marked ability. He was conscientious in the performance of his duties and those of us who knew him were devoted to him.

The Roanoke Academy of Medicine wish to express their sincere sympathy to the family and we have been instructed to forward a copy of these resolutions to them and the Medical Society of Virginia.

T. D. ARMISTEAD,
J. O. BOYD,
W. L. POWELL,
Committee.